The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 51. DECEMBER 17, 1932. VOL. XII.

Special Article

REPORT ON EXPERIMENTS WITH MR. HENRY SPAHLINGER'S ANTI-TUBERCULOSIS VACCINE

H. G. LAMONT, M.Sc., M.R.C.V.S.

W. R. KERR, D.V.S.M., M.R.C.V.S.

P. L. SHANKS, B.Sc. (AGR.), M.R.C.V.S.

MINISTRY OF AGRICULTURE (N.I.), ANIMAL DISEASES DIVISION

Owing to the widespread interest in these experiments and to the fact that numerous enquiries have been received about them, the Minister of Agriculture, Northern Ireland, has decided that a short report should be published giving the position of the experiments to date.*

Nature and Source of Animals Used in the Experiments

It was decided that a number of calves the progeny of cows which had passed the double intradermal tuberculin test, as prescribed by the Medical Research Council, should be used for the experiments.

Eighteen Aberdeen Angus-Galloway cows were obtained. These cows had passed the double intradermal tuberculin test. They were mated with an A.A. bull and their calves were utilised for the experiment. All these cows and calves were kept continuously out of doors on a grazing farm specially rented for the purpose of the experiment. Other 14 calves were removed from their dams and brought to the experimental farm as soon after birth as was practicable. They were reared out of doors continuously on Grade A (T.T.) milk so as to ensure as far as possible their freedom from tuberculosis.

Most of these calves were born in the month of July or beginning of August, 1931, so that at the time of vaccination on Wednesday, December 2nd, 1931, they were approximately five or six months old. In all 32 calves were obtained.

On Wednesday, December 2nd, 1931, Mr. Spahlinger visited this farm and in our presence prepared the material for inoculation. The syringes and needles were boiled in distilled water. The inoculations were made by Mr. Spahlinger, except in the case of the intramuscular group—these being made by one of us.

The animals were divided into six main groups as follows:—

Group 1: Six animals.

Group 2: Two animals.

Group 3: Eleven animals.

Group 4: Two animals.

Group 5: Two animals.

Control group: Nine animals.

This report deals only with Group 3 and the control group, as Group 3 was the only one of the five groups which was treated with what Mr. Spahlinger described as his new simplified vaccine prepared in 1929 in the manner described by him in his communication of January 28th, 1932, and published in the medical press and the *Veterinary Record* of February 6th, 1932. The materials used for these vaccinations were withdrawn by Dr. G. S. Robertson, Assistant Secretary to the Minister of Agriculture, from a parcel sealed by a London bank. The seals showed the parcel to have been deposited in the keeping of the bank on August 17th, 1931, and withdrawn on December 1st, 1931.

Groups 1, 2, 4 and 5 were injected with various preparations supplied by Mr. Spahlinger with the object of throwing further light on the inter-relationship of allergy and immunity. The full details of these groups will be published in the final report which will be issued at a later date. In this report, special reference will be made to Group 1, vaccinated with an old vaccine made in 1926, and in which group, two of the six animals (the two which received the smallest dose of vaccine) died in accordance with expectations from tuberculosis following the injection of the test virus, whereas the remaining four animals in this group resisted the infection of test virus and at the time of writing are in a clinically healthy condition.

A final report dealing with all the groups will be issued after all the animals have been slaughtered.

* This report is simply a statement of fact and offers no opinion or conclusion. We understand that a further communication is to be made to the *Record* when the animals are slaughtered. —ED., *V.R.*

DEPT. OF VET. MEDICINE

Group 3 was sub-divided into smaller groups depending on the method of administration of the vaccine, as follows:—

Group.	Material used.	Method of Administration	Number of Calves.
3A	"New" Vaccine	Intravenous	A4; A22; A25 (three animals)
3B	" "	Subcutaneous	A3; A9; A30 (three animals)
3C	" "	Intra muscular	A5; A14; A27 (three animals)
3D	" " Vaccine plus Olive Oil	Subcutaneous	A1; A29 (two animals)
Control Group	None	—	A2; A6; A10; A16; A20; A23; A24; A28; D100

On May 31st, June 2nd and 3rd, we tested for our own information with tuberculin, using the double intradermal test on control animals Nos. A6, A20, and A23 with the results shown in table at the top of next column.

No. of Animal.	Initial Measurement.	48 hours.	72 hours.	Result.
A6	9·5 m.m.	12 m.m.	13 m.m.	Passed
A20	6·5 m.m.	9·5 m.m.	12 m.m.	Passed
A23	10·5 m.m.	11 m.m.	12 m.m.	Passed

Experiments to determine virulence of cultures to be used in the preparation of the Test Dose

Mr. Spahlinger suggested that the immunity produced should be tested by giving the calves an intravenous inoculation of *B. tuberculosis* isolated, grown and prepared in the Animal Diseases Laboratory of the Ministry and that the dose should be of such a strength as was calculated to bring about death in unvaccinated animals in a period of one to two months. This condition, although in our view of a very drastic nature, was agreed to.

The following experiments were undertaken to test the virulence of the cultures and afford us some information as to dosage.

Experiment 1

For the first experiment a six months calf was purchased from a tuberculin tested herd. On February 2nd it was inoculated intravenously with 100 milligrammes (0·100 grammes) of dry growth of *B. tuberculosis* grown on the surface of Petroff slopes and prepared by us in the manner described in this report. This calf died on February 22nd from acute generalised tuberculosis. A record of its temperatures is given:—

2.2.32	3.2.32	4.2.32	5.2.32	6.2.32	8.2.32	9.2.32	10.2.32	11.2.32	12.2.32	13.2.32	16.2.32	17.2.32	19.2.32	20.2.32	22.2.32
102·6	104·5	105·5	103·6	104·0	103·4	103·2	102·4	103·2	103·2	103·6	105·8	106·0	106·0	106·0	Calf dead

Experiment 2

Calf No. D100 from the control group was transferred from the experimental farm to the Animal Diseases Division.

It was inoculated intravenously with 50 milligrammes (0·050 grammes) of dry growth of *B. tuberculosis* grown on the surface of Petroff slopes. Date of inoculation, April 9th, 1932. The calf died on April 27th from acute generalised tuberculosis. A record of its temperatures is given:—

10.4.32	11.4.32	12.4.32	13.4.32	14.4.32	15.4.32	16.4.32	17.4.32	18.4.32	19.4.32	20.4.32	21.4.32	22.4.32	23.4.32	25.4.32	26.4.32	27.4.32	28.4.32
104·8	102·8	104·0	103·4	103·8	104·0	104·0	103·8	103·8	104·5	104·4	103·8	103·5	104·0	104·4	105·4	104·4	Calf dead

Experiment 3

Calf No. A2 from the control group was transferred from the experimental farm to the Animal Diseases Division.

It was inoculated intravenously with 10 milligrammes (0·010 grammes) of dry growth of *B. tuberculosis* grown on the surface of Petroff slopes. Date of inoculation, April 28th, 1932. This calf died on May 18th, 1932, from acute generalised tuberculosis. A record of its temperatures is given:—

29.4.32	30.4.32	1.5.32	3.5.32	4.5.32	5.5.32	6.5.32	7.5.32	8.5.32	10.5.32	11.5.32	13.5.32	14.5.32	18.5.32
102·6	102·0	102·8	103·4	104·0	104·2	104·2	104·5	103·8	104·2	105·8	107·2	105·8	Calf dead

These experiments, beyond indicating the virulence of our cultures, did not afford precise information as to the dose which would fulfil the stipulated condition. As, however, we were limited for time we decided without further trial on a dose of 2·5 milligrammes (0·0025 grammes) of dry growth of *B. tuberculosis* grown on the surface of Petroff slopes.

The cultures used were isolated and prepared in the manner described below. They were young and actively growing and in no case more than one month old.

Method of Preparation of Test Dose

The following weights of growth of *Bacillus tuberculosis* from the surface of solid Petroff Egg media slopes were emulsified in an agate mortar with normal saline and then shaken in a stoppered bottle with various sizes of glass beads until an even suspension was obtained. In all 0·625 grams of growth were suspended in 50 c.c. of normal saline.

Ten c.c. of this suspension was pipetted into a sterilised 500 c.c. glass-stoppered cylinder and normal saline added to the 500 c.c. mark. This represented 0·125 grams of *Bacillus tuberculosis* suspended in 500 c.c. normal saline.

This suspension was distributed in 10 c.c. amounts in amber vaccine bottles fitted with rubber caps. Each 10 c.c. contained therefore 0·0025 grams of growth of *Bacillus tuberculosis*. This was the dose given to each calf.

The suspensions were prepared with careful aseptic precautions, the actual weighings and dilutions being done by one of us. Each culture before being used was examined microscopically by three of us and the purity of its growth checked.

In all, seven (7) different strains of *Bovine tubercle bacilli* were used. All of these were isolated in the Animal Diseases Division as follows:—

Strain.	Date of Isolation.	No. of Subculture	Source of Strain.	Amount used.
				grams
2	16.2.31	10th	Milk (direct cultivation)	0·100
3	10.2.31	9th	Milk (per guinea pig)	0·100
Q.U.B.	3.3.31	9th	Milk „	0·100
X	3.6.31	9th	T.B. gland (per guinea pig)	0.025
5	4.4.31	8th	T.B. lung (per guinea pig)	0·100
6	15.4.31	9th	Milk (direct cultivation)	0·100
Baillie B.	13.1.32	3rd	Milk (direct cultivation)	0·100

Total weight of growth 0·625 gram suspended in 50 c.c. normal saline. Ten c.c. of this suspension containing 0·125 gram of growth added to 490 c.c. normal saline and shaken.

Each 10 c.c. of this suspension constituted one test dose, *i.e.*, each calf received 2·5 milligrams of growth of *Bacillus tuberculosis* suspended in 10 c.c. saline. The test doses were prepared immediately prior to injection and each vaccine bottle was thoroughly shaken before use. We hoped by these means to ensure that each calf would receive 2·5 milligrams of a composite dose.

Method of Administration of Test Dose

The test dose (2·5 milligrams) was inoculated intravenously into the jugular vein of each animal in the vaccinated and control groups on June 6th, 1932, or approximately six months after vaccination, by two of us (H. G. L. and W. R. K.) in the presence of Dr. G. S. Robertson, Assistant Secretary to the Ministry, F. W. Emery, F.R.C.V.S., Chief Veterinary Officer to the Government of Northern Ireland, P. L. Shanks, B.SC., M.R.C.V.S., and James Omand, B.SC., M.R.C.V.S.

The method of administration was as follows:—

The exact dose was aspirated into a 10 c.c. hypodermic syringe, a needle was inserted into the jugular vein and the blood observed to flow freely, the syringe was connected to the needle and a drop of blood aspirated into the syringe; the piston was then driven and when about halfway a further quantity of blood was aspirated to ensure that the needle was still in the jugular vein. The piston was then pressed home. Before finally removing the syringe and needle, a further quantity of blood was aspirated into the syringe and returned to the jugular vein, so that there was no doubt but that the entire dose was administered intravenously. Each animal was carefully checked off before inoculation.

After inoculation the animals were inspected daily and as they gradually became more quiet their temperatures were recorded. [N.B.—It was not possible to do this from the beginning in the case of some of the animals, as they were very wild and we did not desire to disturb them unduly. They were allowed to continue out of doors.]

Subsequent History to Date

Their subsequent history to date is as follows:—

Group 3*A*.

The three calves in this group showed a marked rise in temperature following inoculation of the test dose. Some coughing was noticed. The temperatures fell gradually, and 10 days after administration of the test dose had returned to normal. Coughing became very infrequent, and in about 21 days no further coughing was noticed. No. A4 animal lost some condition during this period, but when the temperature reached normal it quickly recovered.

Group 3B.

The three calves in this group behaved in an exactly similar manner to those in Group 3A.

During the first 14 days Nos. A3 and A9 lost perhaps rather more condition than did A4; this, however, they quickly made up when their temperatures reached normal.

Group 3C.

The animals in this group reacted similarly to those in Group 3A. No. A5 was very dull and became rather unthrifty looking during the first 14 days. It, however, quickly regained the lost condition when its temperature returned to normal.

Group 3D.

These two animals behaved similarly to those in Group 3A. No. 29 lost some condition during the first 14 days. It, however, regained this when its temperature returned to normal. Very little coughing was noticed in these two animals and none after the first 14 days.

Control Group.

(It should be noted that two calves from this group, D100 and A2, were transferred to the Animal Diseases Laboratory for virulence tests, so that only seven animals remained in it at the time the test dose was given.)

These calves showed a very fluctuating temperature following administration of the test dose, rising and falling as much as 3° in one day. About the 10th or 11th day all their temperatures showed marked rises and in the case of A16, A10, A20, A6 and A24 this elevation of temperature was maintained with fluctuations until death supervened. These five calves (A16, A10, A20, A6 and A24) gradually became emaciated and developed a persistent cough.

A16 died on July 1st, 1932, 25 days after administration of the test dose.

A10 died on July 5th, 1932, 29 days after administration of the test dose.

A20 died on July 10th, 1932, 34 days after administration of the test dose.

A6 died on July 28th, 1932, 52 days after administration of the test dose.

A24 died on August 18th, 1932, 73 days after administration of the test dose.

Post-mortem examination of all five showed acute generalised tuberculosis.

The temperatures of calves A23 and A28 at the 14th day commenced to fall and fluctuated around 103° and 104° until the 35th day, when they approximated normal. They have remained normal from that date.

Both A23 and A28 coughed considerably during the first month, but this symptom disappeared when their temperatures returned to normal. Temperature graphs of Group 3 and the control group are reproduced on pages 1475-6-7.

SUMMARY OF RESULTS

To summarise the results:—

Group 3.

Eleven animals vaccinated with "New" vaccine on December 2nd, 1932.

Test dose administered on June 6th, 1932.

All 11 animals clinically healthy on December 1st, 1932, six months after receiving the test dose.

Control Group.

Seven animals. Unvaccinated.

Test dose administered on June 6th, 1932.

Five animals dead within approximately two months.

Two animals alive and apparently healthy on December 1st, 1932, six months after receiving the test dose.

It should be noted that all the animals were maintained on the same pasture and had access to the same water troughs and shed, and that a number of deaths from acute tuberculosis occurred, exposing the survivors to the risk of a natural infection, in addition to the artificial one.

In addition, we should like to state that the survivors are exposed to parasitic infestations as numerous fluke eggs and round worm eggs have been found in the manure. A few of the calves are also affected with "Hoose," strongyle eggs being found in the nasal discharges.

SHIRE HORSE SOCIETY

At a meeting of the Council of the Shire Horse Society, held on December 6th, an advance copy of the London Show Schedule was submitted and approved for circulation. £1,775 is again offered, and the six stallion classes, six mare classes and six commercial horse classes remain unaltered. The gelding section has been somewhat revised as, although the same amount of prize money is offered, on this occasion it is to be divided betwee three classes instead of four as heretofore.

The following will officiate as veterinary officers at the Show on February 21st, 22nd, and 23rd next: Mr. T. Eaton Jones, F.R.C.V.S., Liverpool; Major T. Hicks, M.R.C.V.S., Sleaford; and Mr. G. H. Locke, M.R.C.V.S., Manchester.

The Appointments Judge will be Major-General Sir John Moore, K.C.M.G., C.B., F.R.C.V.S.

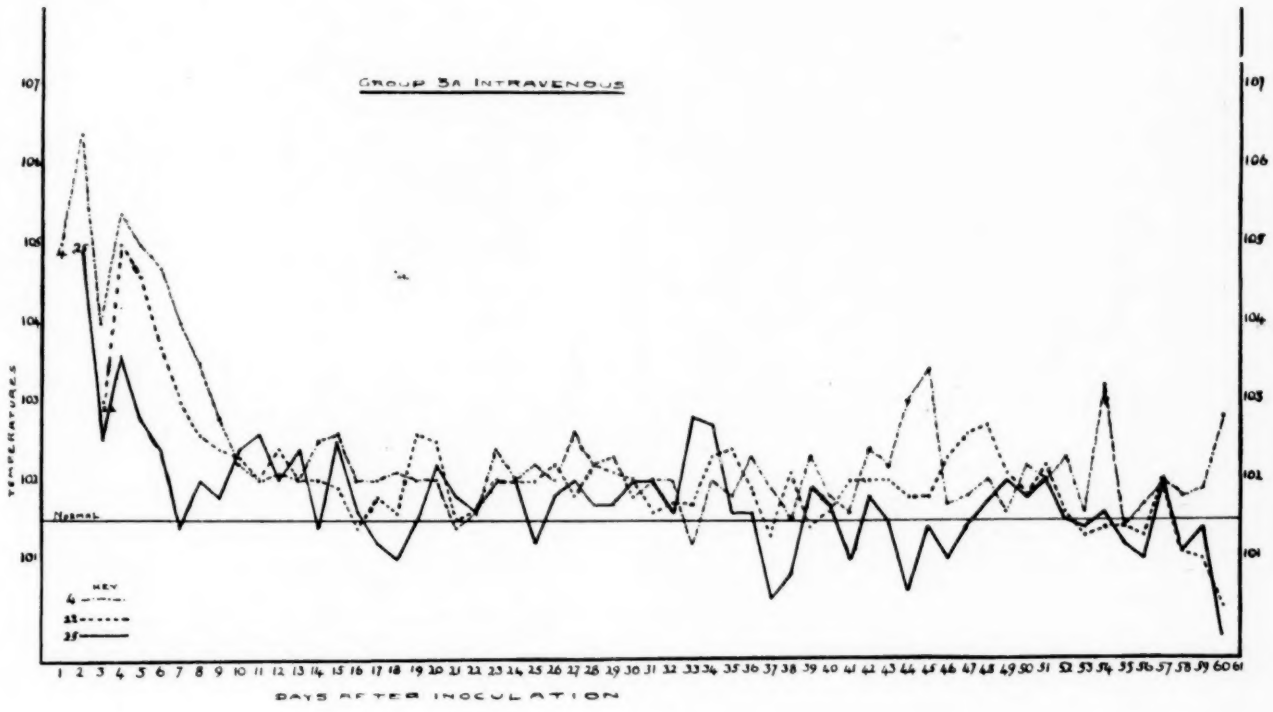
The stallion and gelding classes will be judged on the first day, mares and produce groups on the second day, followed by the championships in the afternoon. Following a parade at 10 a.m. on Thursday, the Auction Sale will commence at 11 o'clock, while the judging of the commercial classes will follow at 2 p.m. on that day.

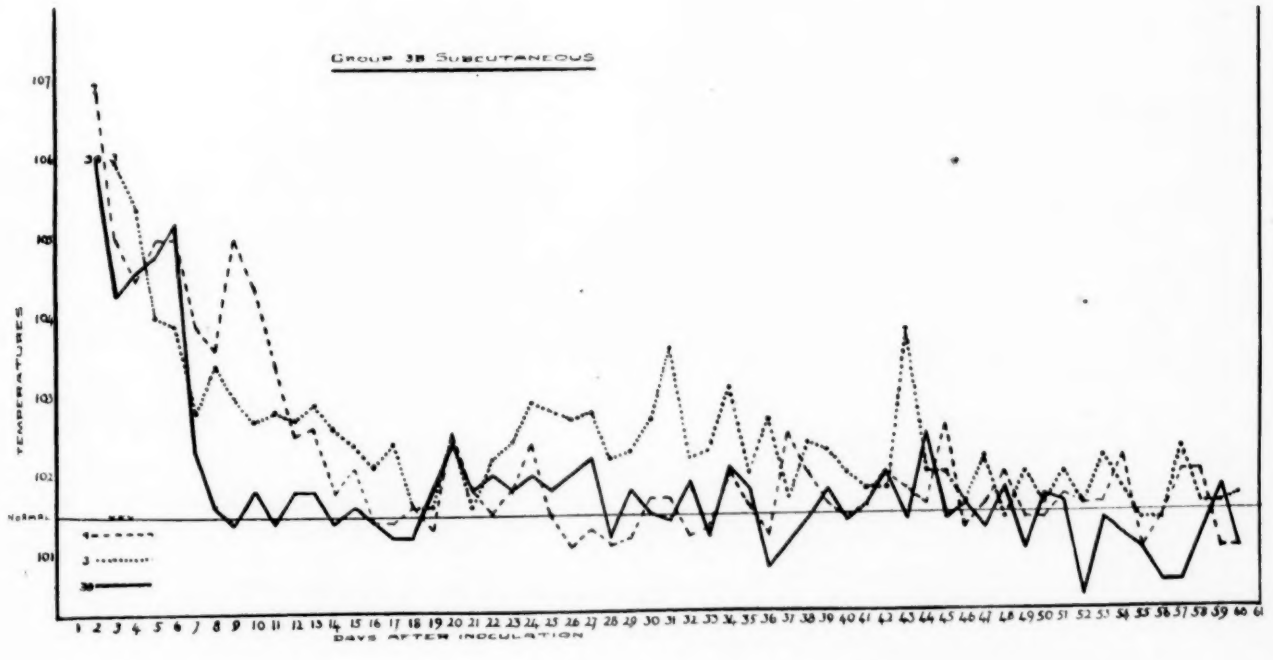
The annual general meeting of members was fixed for 4.15 p.m. on Wednesday, February 22nd, 1933, at the Royal Agricultural Hall, and Council Meetings have been arranged for at 12, Hanover Square on the following dates in 1933, *viz.*, Tuesday, January 31st, Tuesday, April 4th, Tuesday, October 17th, and Tuesday, December 5th.

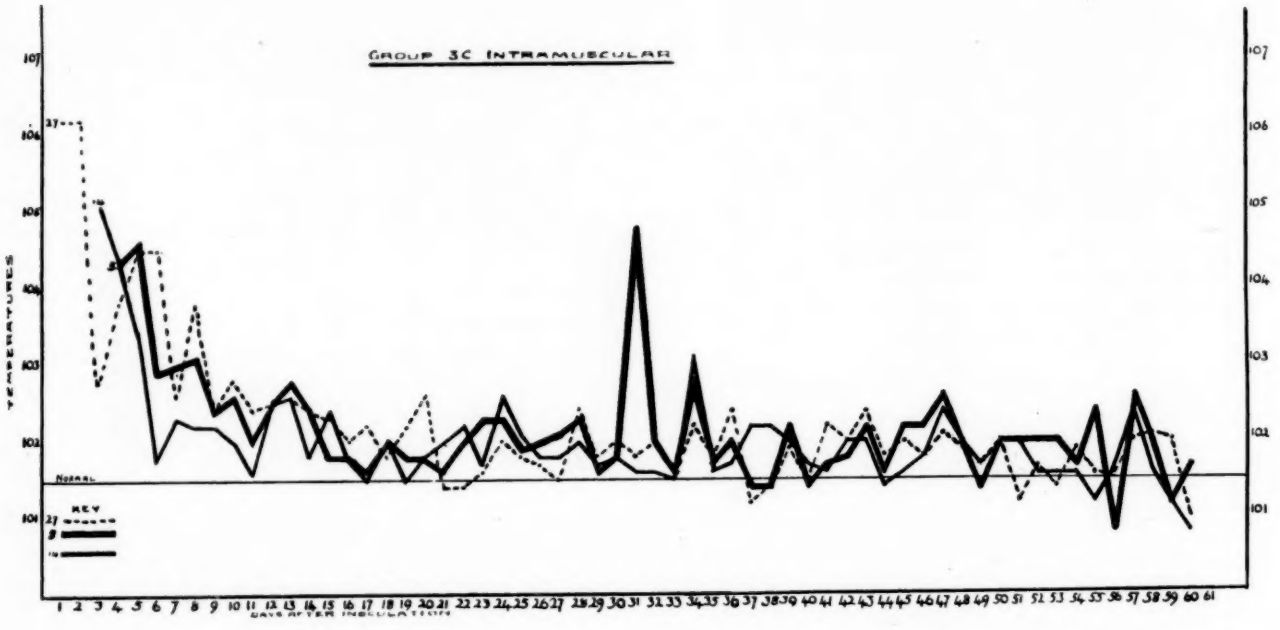
In reporting that Volume 54 of the Stud Book was now in the press and would be available for issue early in February as usual, the Secretary mentioned that for the fourth successive year there was an increase in the number of stallions accepted for registration.

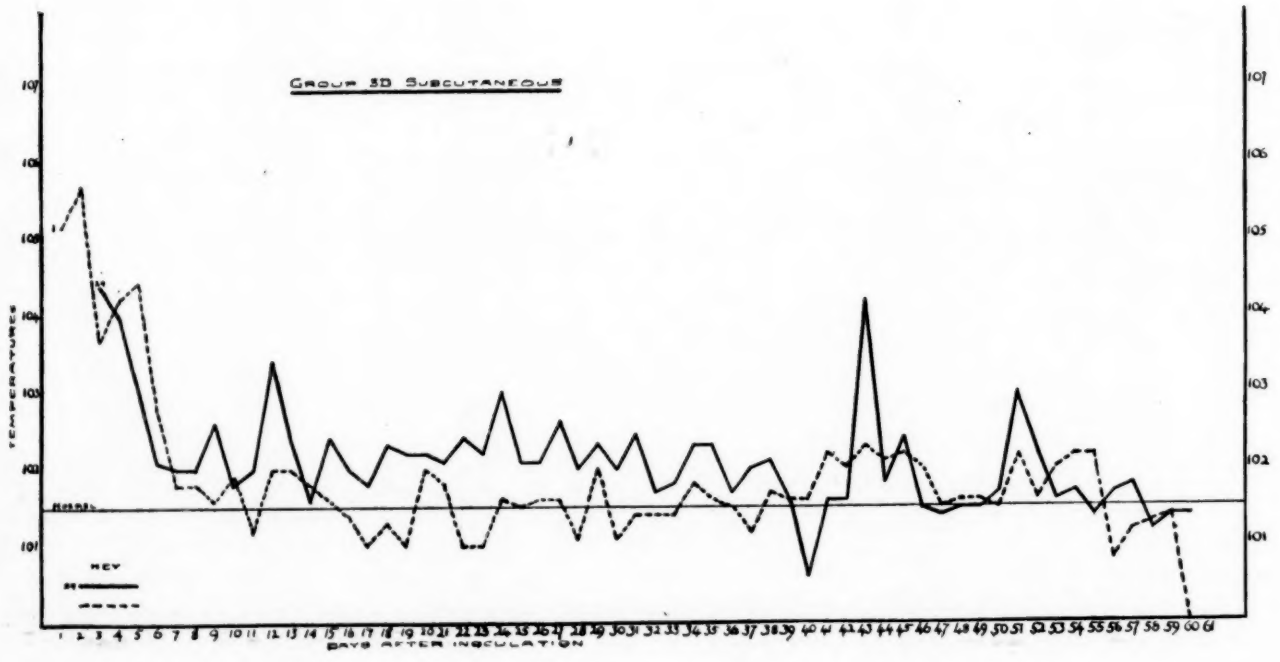
Appendix

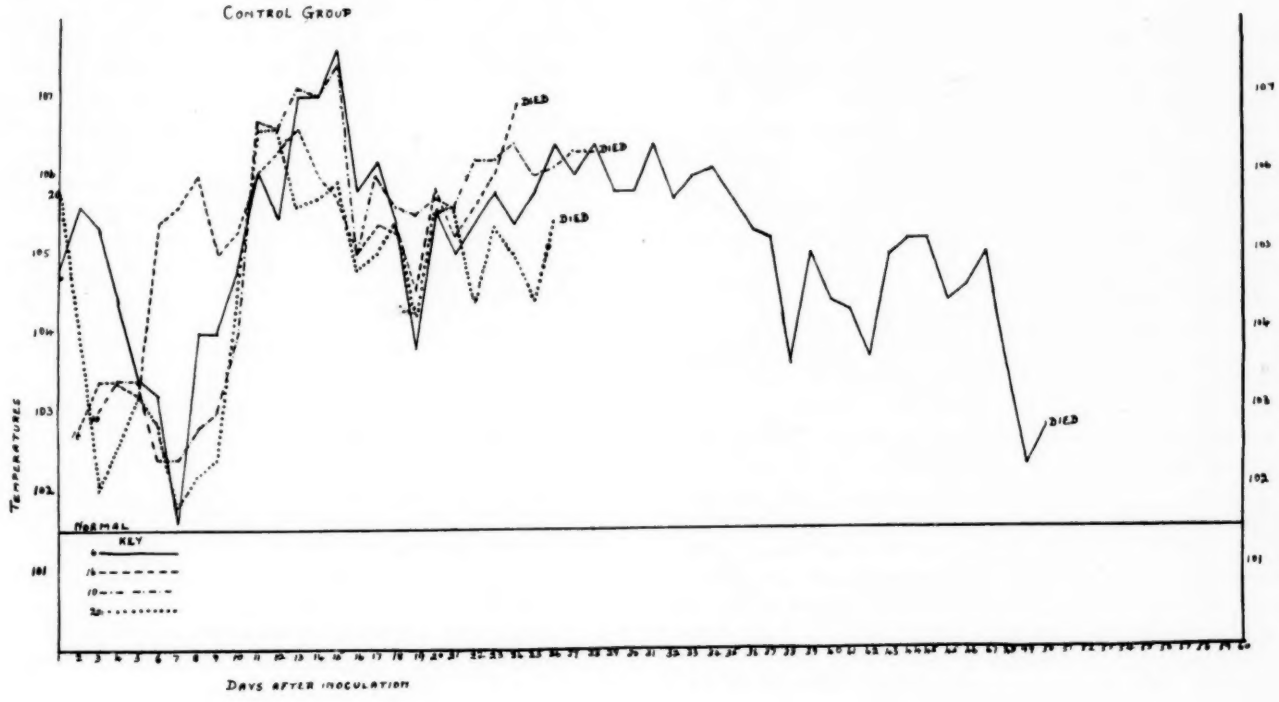
Following are the Temperature Graphs:—

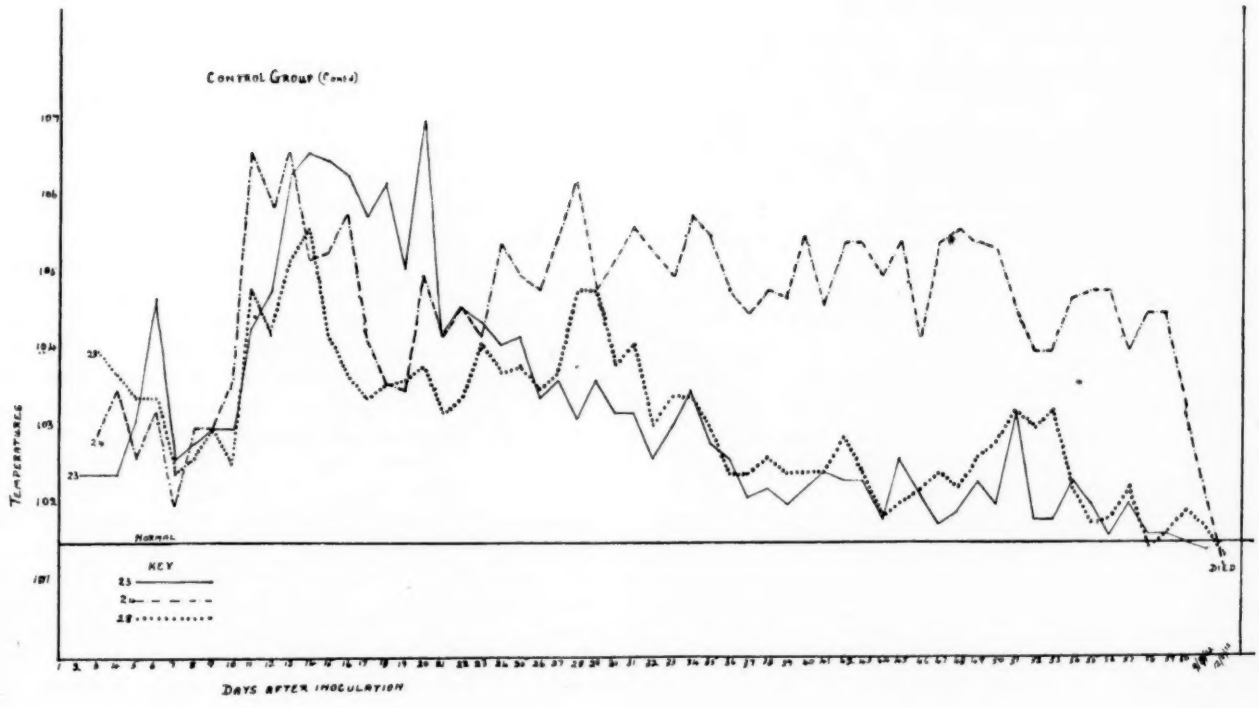





GROUP 3C INTRAMUSCULAR
TEMPERATURES
Normal
KEY
DAYS AFTER INOCULATION


GROUP 3D SUBCUTANEOUS
TEMPERATURES
Normal
KEY
DAYS AFTER INOCULATION


CONTROL GROUP
TEMPERATURES
NORMAL
KEY
DIED
DAYS AFTER INOCULATION


CONTROL GROUP (Contd)
TEMPERATURES
NORMAL
KEY
DIED
DAYS AFTER INOCULATION

THE ENCOURAGEMENT OF HORSE-BREEDING

MAJOR-GENERAL SIR JOHN MOORE,
K.C.M.G., C.B., F.R.C.V.S.

It is a sad reflection on the probity of a country such as ours that it should be inappreciative of the vital necessity for gestures which conduce to the success and well-being of its oldest and basic industry of agriculture, its continued efficiency in trade and commerce from an economical aspect, its pre-eminence in sport, and in all those issues which make life worth living.

The withdrawal entirely by the Government of the grant for Light Horse Breeding, the non-acceptance of the means whereby the breeding of useful ponies may be fostered, and the dampness over the Scheme for Heavy Horse Breeding are matters which seriously affect the industrial community as a whole, be it agrarian or municipal. Without substantial financial aid and expressed encouragement by Government, horse-breeding, so vital to the country, must regrettably succumb. It is too much to expect individual breed societies, with their limited funds, to apply artificial respiration. Government must do something, and that something quickly. It is most necessary that there should be a sympathetic re-consideration of the whole aspect of horse-breeding in all its varied forms, and ways and means formulated to meet actual circumstances. Take, for instance, the quota scheme for corn production and the breaking up of land from grass to arable in consequence. Where are the suitable farm horses to effect this? At present they are simply conspicuous by their absence in the desirable numbers. True it is that the intelligent farmer and breeder has somewhat anticipated events, and the number of this year's crop of foals has shown an increase, and perhaps future years will disclose further and maintained increases if encouragement is forthcoming.

It must be borne in mind that the average farmer cannot afford a tractor even if such mechanism were suitable for all aspects of farm work under the varying conditions of climate and the character of the land of this country. And, as the basis of all industry, agricultural or otherwise, is consonant with profit or loss, it is here opportune to review briefly the relative costings of tractor *versus* horse labour in agricultural undertakings.

In experiments conducted by the Department of Agricultural Economics, Oxford University, three years ago, it was calculated that the tractor will do twice as much work per hour as will two horses, and that the cost of tractor work was 2s. 10d. per hour as against 1s. 8d. per hour for the same amount of work done by horses, the tractor cost being based on 740 hours per annum. In an investigation conducted recently into farming costs in the Department of Economics, South-Eastern Agricultural College, Wye, the cost of an hour's horse work was estimated at 4¾d., while in previous experiments the cost of tractor work averaged 3s. per hour. On the principle that a tractor will do twice as much work as a pair of horses in an hour, the cost of horse work as against tractor is therefore as 1s. 7d. to 3s. On Minnesota (U.S.A.) farms, with a mean annual hours of work at 417, the cost of 10 and 15 drawbar horse power tractors works out at 4s. 6d. and 5s. 8d. per hour, respectively. Assuming that all farm work was to be mechanised, on costings, one tractor would be required to displace from two-and-a-half to three-and-a-half pairs of horses in this country, and from 10 to 15 horses in the United States—an impossible situation in our British farms of 300 acres and under.

The value of horses on farms, however, does not altogether lie with actual work done. The farmer has an eye to profit in production of the most suitable animal for general purposes, and this is where the State can be of great assistance to him in determining. The maintenance of good, sound mares and approved stallions is essential to the raising of suitable, sound young stock, which in their young ages can be broken in and used for farm work, and afterwards sold at a profit for commercial purposes in cities and towns. It is an aspect of farming which really does carry all-round economic advantage, and is worthy of sympathetic consideration in these depressed days of agriculture. The breeds of horses used for agricultural and commercial purposes are a national asset and should be treated accordingly; the interests of breeders respected, and encouragement rather than discountenance ordained.

So much for the horses of the farm and their production, and its bearing on the demand for animals for commercial and transport purposes. In the latter category, it must not be forgotten that the desire of the commercial firm and small trader is now more for the active type of horse that can compete with the faster, mechanised forms of transport in cities, equal to eight miles an hour at the trot, and quick off the mark at a given signal. Experience has conclusively shown that they carry economic advantage over mechanised means of transport within the short radius of common trade activity, an important factor in these days of industrial depression, reduced profits, and need for rigid economy in every walk of life.

With regard to light horses, it is estimated that there are at least 40,000 hunters over five years old in our various hunts in Great Britain. A foundation stock of approximately 5,000 mares is kept for the breeding of hunters of

the best type, and 20,000 young stock under five years are coming on. This affords employment for a large number of men and women, the wage bill being estimated at £1,978,000 per annum, and the food required for these animals —estimated at exceeding £2,000,000 per annum —means a vast help to the British agriculturist. What with one thing and another, it is safe to say that through hunting and riding there is a circulation of about £12,000,000 annually. The requirements of light horses for the Army, too, are considerable. The average strength of the Army in horses during the year 1931-32 was 13,327, of which 1,593 were remounts. The wastage from all causes during the year was approximately 12 per cent. (Chargers 15 per cent.; others 10 per cent.), which may be taken as a guide for numbers required in replacement. The approximate cost prices of Army horses are as follows: Troop horses of Cavalry, R.H.A., R.F.A., R.E., R.A.S.C., etc., £50; Officers' Chargers, £70 (Infantry) and £120 (Cavalry); Household Cavalry Troop horses, £90; Chargers of Household Cavalry, £140. If an average price of a little over £50 is taken for all horses purchased, the total cost to the State for remounting the Army annually cannot be less than £80,000. So good a customer as the Army in the matter of light horses is in itself a sufficient reason for that help and encouragement which it is the duty of a State to render in the production of horses for the various purposes of an Army.

Here it is apposite to recall, briefly, the history of the "Light Horse Breeding Scheme." This was initiated in 1911, and was administered by the Ministry of Agriculture. After the War, when economy became imperative, it was decided that the Scheme was not necessary in the interests of agriculture, and that the grant (£30,000) could no longer be borne on the Vote of the Ministry. It was suggested that if the Scheme was necessary for the Army, it should come against the Army Vote. The War Office accordingly took it over in 1924, and it goes without saying that the Army authorities carried it through successfully. In recent years much has been done to stimulate the Cavalry or Hunter type of horse, and the active, light draught horse with good trotting ability. Another merit of the Scheme so far as it concerned the War Office was that the producer could be brought directly into touch with the Army.

The Scheme is now a dead letter, so far as it affects the War Office. Only £8,000 was made available for the King's Premiums and Service Fees this year; the awards being given at the last Hunters' Improvement and National Light Horse Breeding Society's Show at Islington. The Grant for next year's show has been abolished altogether. That such an impasse has arisen is greatly to be deplored, and it is hoped that ways and means will be found to reanimate the Scheme under different auspices. It is not the duty of an Army to carry out comprehensive schemes of horse-breeding. Clearly such are national services and administration should rest with the Ministry of Agriculture as the appropriate Authority for the furtherance of its own industry in its various directions.

In schemes, too, for horse-breeding, the preservation and raising of our excellent breeds of ponies should find place. These useful animals have now almost become an essential part of our life. Properly broken and handled they are most suitable and adaptable for children. The vigorous development of the muscles through riding, the healthy respiration in the fresh air, and the confidence inspired, mean a lot in the sound, healthy, physical and mental development of the boy or girl. From the "eugenic" point of view, riding exercise is worthy of encouragement. From the point of view of work in the mines, our breeds of ponies are valuable, and their use constitutes an element of safety, the substitution of electric and other methods of hauling coal from the mine facings predisposing to explosions and disasters. For the small trader, too, the pony, inexpensive both in purchase and keep, fits in well with the profits of his business. There are many avenues of trade and pleasure where the pony becomes a necessary factor, and it should be our country's business to preserve their respective identities and to have a care for them generally.

In all schemes for horse-breeding the keynote should be an industry directed towards home needs, and importations banned.

Lastly, Great Britain owes a debt to animals for the part they played in the War, and a few figures will make this clear:—

The pre-War strength of the Home Army in horses was approximately 23.000. The strength in horses of the Expeditionary Force which mobilised and went to France was 53,000. During the first 12 days of the War 165,000 were requisitioned. Between August, 1914, and the middle of 1918 roughly 450,000 were bought in the United Kingdom, and over 700,000 horses and mules were bought in the United States and Canada. The estimated number purchased throughout the War amounted to 1,361,000. At one period of the War the strength of animals on all fronts totalled over 1,000,000. During the four-and-a-half years of the War in France 750,000 animals took part, and the total wastage from death, destruction and missing amounted approximately to 250,000. From August, 1914, to March 31st, 1919, the total number of admissions to Veterinary Hospitals and Convalescent Horse Depôts of the Home Command, and of the Expeditionary Forces in France, Egypt,

Salonika and Mesopotamia amounted to 2,526,549, of which 78 per cent., or approximately 2,000,000, were cured and returned to duty.

It is to be hoped that there will be no more wars, but it is inconceivable that any war could be conducted without horses, and it is necessary therefore to maintain horses as part of our Armed Forces. To be prepared for war is perhaps the best deterrent of it. And yet one can be justly proud of the achievements of animals in war. An outstanding instance, and probably without parallel in the history of all wars, of a rapid and sustained movement, was the advance on Jerusalem in 1917-18 of the Egyptian Expeditionary Force under Field-Marshal Viscount Allenby. By force of circumstances and military exigency some horses of the units engaged went without water for 84 hours, others for 77, 72, 68, 65, and 60 hours. It is a glorious and honourable page in the record of service of animals performing work under the most trying conditions of privation. It is quite certain that no mechanical substitute could have filled the rôle so successfully borne by animal flesh and blood.

VOLVULUS AND INTUSSUSCEPTION IN CATTLE, AND THEIR SURGICAL TREATMENT*

R. H. SMYTHE, M.R.C.V.S.
Camborne

Bowel displacement and strangulation of bowel are responsible for a far greater percentage of the disorders usually referred to as "stoppage" in cattle practice than is generally imagined. Nearly all such cases end fatally in the absence of surgical intervention and I wish to emphasise the fact that whenever there are reasonable grounds to suspect either condition, exploratory laparotomy is not only a rational procedure but that, with ordinary simple precautions, it is quite safe. The immediate and subsequent effects of the operation in cattle are negligible and, in fine weather, patients may be turned out to graze 48 hours later and seldom require any further attention.

Although one is justified in taking the risk of a diagnostic error in some cases rather than delay operation, one may feel assured of the existence of bowel strangulation when peristaltic movements have been suspended over a period of 24 hours and ropy blood-stained mucus can be removed from the rectum by hand. The usual sounds of peristalsis, as heard in the flank, may be completely absent, or more commonly their place is taken by metallic clinking sounds or sometimes by a sound best described as resembling that made by a slowly dripping tap.

Nevertheless, strangulation of the bowel as opposed to intussusception is quite easily overlooked, since in cattle loops of bowel frequently become loosely trapped and in such cases pain is not always severe, although usually persistent. Complete cessation of defæcation may not occur for a considerable period; moderate bowel action may take place for as long as 24 hours after the development of an intussusception and in one case in which a cow sustained a slack twist of the large intestine as a result of falling over a cliff, small quantities of hard, shiny fæces were passed up to 72 hours after the accident. In a similar case our services were not sought until ten days after the cow had shown the first signs of colic and she was then successfully operated upon for a loosely trapped bowel.

In all these cases the attitude of the patient affords some help in making a diagnosis. Cows tied in a stall adopt uneasy positions, such as standing at full stretch with the hind feet in the drain, or they may push backwards into a corner, if loose. In some cases cattle lie persistently, lay the head on the side and grind the teeth. On the other hand, severe pain may be absent altogether, as in some cases of intussusception after the first acute pangs have passed. Such conditions are very difficult to diagnose; the symptoms are then those of toxæmia, with a falling temperature, and death occurring about the third day.

Although rectal examination may, in a few cases, detect an intussusception or volvulus in the small intestine, it may altogether miss strangulation of the large intestine in the right lumbar region, lying out of reach of the hand. It is almost useless in advanced pregnancy. The small intestine, when strangulated, usually fills with gas, which brings several loops into the pelvis, and sometimes an intussusception can actually be located, but in my experience this is not usual. The rectum itself has, as a rule, a dry and sticky feeling and the hand and arm, when withdrawn, are frequently coated with blood-stained mucus.

Not infrequently, a tight band, the thickness of one's finger, can be palpated, passing from the pelvis to some unknown destination out of one's reach, and bowel may become trapped between this and the abdominal wall. Similar bands may occur in other parts of the abdominal cavity. The incarcerated bowel, in such cases, is not always sufficiently constricted to produce necrosis for several days, but it soon becomes flatulent or it may partially fill up with fluid, according to whether its greater curvature is uppermost or below. When it contains fluid this loop of bowel, which is usually a piece of

* Presented to the Western Counties Division, N.V.M.A., at Exeter, October 19th, 1932.

large intestine, makes a loud splashing sound when it is forcibly palpated through the right flank, and a similar noise may be heard when the abomasum holds imprisoned fluid, held back by obstruction of the duodenum or other portion of the small intestine. This splashing sound is not altogether diagnostic of bowel displacement, as it is commonly heard in the patchy congestion of the intestines associated with atony, most frequently met with during frosty weather.

I have never encountered the condition known as gut-tie, although one would think that conditions in the Western counties would favour its appearance. I can offer no certain explanation of the nature of the false bands I mentioned previously. I have been able to detect them in six or seven cases on rectal examination and I have encountered them in the lumbar region. In one case I was able to break the band by traction exerted through the rectum—giving immediate freedom from pain—and in another instance, after breaking the band *per rectum* without affording relief, I operated and found a second band in the lumbar region which had trapped a portion of large intestine.

I have had no opportunity so far of examining one of these bands *post-mortem*, as all the cases in which they have been detected have made good recoveries, but I suggest that they are strips of omentum which have become adherent to the parietal peritoneum.

It is not uncommon for a piece of intestine to pass through a slit in its own or neighbouring mesentery and it then becomes necessary to enlarge the opening in order to withdraw the distended loop. Such cases could not easily be confounded with intussusception, in which, as Mr. Harvey has recently pointed out, the tension of the mesentery produces a somewhat similar appearance.

TECHNIQUE OF THE OPERATION

The instruments required are a scalpel, scissors and several large half-curved needles, some threaded with stout hempen twine and others with heavy-gauge catgut. A piece of linen about two feet square, with a window cut in the centre, is used to protect the operation area. An ordinary darning needle, threaded with crochet cotton, should be in readiness in case of any necessity to suture the bowel wall.

The instruments should be boiled and placed in a tray of 1 per cent. lysol solution.

The operation should be performed in the right flank, excepting in advanced pregnancy, when the left flank is preferable. On the right side the omentum is more evenly distributed and forms a barrier between the intestine and the abdominal wall, which makes suturing more simple and provides subsequent protection.

It is a good plan to mark out the line of incision by clipping the hair with the point of the scissors before casting. This should be a vertical line, commencing a few inches below the angle of the haunch. If this preliminary mapping out be omitted, the operator may be surprised to find, when the cow rises, that the skin incision lies directly over the stifle, where it will be constantly interfered with by movements of the limb.

The cow is cast on the left side, the hocks are lashed together and pulled well back behind the body, the rope being firmly secured to a pole or to a bar driven into the ground. The head should be raised on a sack or bundle of straw to facilitate breathing and to prevent vomiting which sometimes occurs, with disastrous results, during anæsthesia, when obstruction exists in the first part of the small intestine.

Whilst chloroform is being administered the flank is clipped over a wide area, the skin is scrubbed with a moderately strong lysol solution, dried with a towel and swabbed with surgical spirit. The injection of a little Procaine subcutaneously along the proposed line of incision is useful and lessens the need of inducing a dangerously profound general anæsthesia.

After incising the skin for a distance of from four to six inches, the external oblique muscle is divided with the blunt point of the scissors and the deeper muscles are torn through in the direction of their fibres with the fingers. The peritoneum is divided with scissors. This method of opening the abdomen limits hæmorrhage and leaves a buttonhole wound which prevents hernia formation and ensures rapid healing.

The hand is then inserted through the wound and the omentum encountered. In this region it occurs as a continuous sheet. It is brought through the incision and divided with scissors sufficiently to allow the hand and arm to be passed through it. With the hand now freely moveable in the abdomen a systematic search is commenced, starting in the pelvic region, where the small intestine will be encountered and can be brought through the wound for examination if required. Search carefully for any tense, abnormal bands in the pelvic region and palpate the uterus. Pass the hand forwards and handle the large intestine piece by piece, particularly noting the freedom of its mesentery. If undue tension or thickening be felt in this, examine the corresponding portion of bowel and note any distension with gas or fluid. The large gut is practically immobile and examination and surgical manipulation are mainly dependent upon touch alone. If a distended loop can be felt, determine whether it is trapped at its base by a false band or by a loop of mesentery or whether it is twisted upon itself. False bands may be divided by a scalpel inserted through the incision or by means of a covered embryotomy knife.

XUM

After reducing the bowel displacement, it is good practice gently to massage the bowels in a backward direction, and I have found that this procedure often stimulates peristalsis even when no actual obstruction can be detected.

Suturing is the most difficult part of the operation and is carried out with the help of large half-curved needles. The peritoneum is left unsutured, being rapidly closed by the adhesion of omentum. The deep muscles are brought together by a continuous suture of strong catgut and the external oblique muscle and skin are sutured together with interrupted stitches of hempen cord. One button suture, through the skin alone, will help to provide support. The sutures are left in position until they work loose.

No constitutional symptoms should follow the operation; healing is complete in three weeks and the cow may be turned out within a few days of the operation.

The procedure is so safe and simple that an exploratory laparotomy should occasion no anxiety whenever it may appear to be warranted.

* * * * *

SUPPURATIVE ARTHRITIS OF THE PASTERN JOINT*

F. T. HARVEY, F.R.C.V.S.
St. Columb

[This Clinical Note was presented to the Western Counties Division at Exeter, and is included in this section as one of the papers given at the meeting on October 19th, in view of the fact that their presentation was followed by a joint discussion.—Ed., *V.R.*]

I have here the os suffraginis, os coronæ and os pedis from the hind leg of a farm horse. The pastern joint was completely disorganised—destruction of cartilage, extensive bone erosion, abscess and sinus formation, with much callus formed around the joint and extending well up on the anterior surface of the suffraginis. The mare returned from work apparently sound, but on the following morning was very lame. There was general systemic disturbance. No wound was present nor was there a history of any accident. For some weeks the mare had been rubbing and stamping a good deal. The horses in the stable, four in number, were all affected with leg mange. There was little or no swelling of the affected limb at first, but extreme tenderness around the pastern joint. The parts, however, gradually enlarged from the hoof head to the fetlock. During movement the foot was well advanced and attempts were made to throw the weight on to the heel. After about two months the pastern joint discharged at intervals. Ultimately it was decided to destroy the mare.

Remarks.—Suppuration of a joint apart from wound infection is fortunately rare in horses, but not uncommon in connection with sesamoid sheaths. The irritation produced by the symbiote allows organisms to obtain a foot-hold in the skin which may result in the development of a pustular folliculitis. From such a focus organisms may enter the blood stream, and should they become arrested in damaged tissue, such as bruised bone, may start a destructive inflammation. It is, I think, not unlikely that, in this case, there was some material relation between the joint and bone lesions and the severe pruritus. You may remember that Mr. Noel Pillers has recently dealt with the latter subject in an interesting manner.

* Presented to the Western Counties Division, N.V.M.A., at Exeter, October 19th, 1932.

* * * * *

RED WATER—HÆMATURIA—IN YOUNG CATTLE*

F. T. HARVEY, F.R.C.V.S.
St. Columb

I have occasionally been asked to see a batch of young cattle reported as suffering from red water. Such cases usually occur on arable farms where bovine piroplasmosis is unknown, but in red water districts, any bullock passing coloured water would be regarded by the owner as suffering from that disease. The urine is bright red in colour and gives one the impression that the lesion is in the kidneys, or some other part of the urinary tract. Some of the animals have been blind. If brought indoors, given a laxative and a change of diet, recovery takes place in a few days. These cases are usually met with in the autumn and the history generally shows that the animals have been feeding for some days on rape. The latter would seem to cause, at times, renal irritation in young cattle and not in sheep. I have, however, in past years heard farmers speak of rape fever. Here the wool falls from quite large areas. Recently a yearling was reported as a case of red water. The animal had never been out of doors, but for some days had been given a quantity of kale daily. A change of diet soon had the desired effect. Both rape and kale belong to the Cruciferæ. It is curious that these plants should cause renal irritation in cattle. The late Mr. John Dunstan, of Liskeard, informed me that he also had seen rape red water in young cattle and noticed the blindness in some of the cases. This latter feature is interesting. Parenchymatous nephritis tends to cause a general œdema of the tissues and it is possible that the animals feeding with their heads in the dependant position might suffer from œdema of the retina with resulting blindness.

Joint Discussion on the Fore-going Papers*

Mr. G. H. Gibbings said that the cause of abdominal pain in cattle was difficult to diagnose. He had seen a batch of such cases in a week. The affected animals showed pain, stretching and slight distension of the rumen and passed fæces covered with mucus. He had known recovery to follow surgical interference although nothing was found. It was bad treatment to give salts. There was difficulty in deciding when one should operate, and he asked Mr. Smythe his opinion as to what was the best time to operate if the obstruction could be felt.

Mr. E. R. Edwards observed that many years ago he anæsthetised pigs at St. Bartholomew's Hospital, where experiments were being made to discover the best way to deal with gun-shot wounds of the abdomen. During the discussion it had crossed his mind that a piece of bowel might be resected in those cases of obstruction. Could the telescoped piece of bowel be removed? In the experiments to which he referred resection was practised and the bowel joined up with the aid of Murphy's decalcified buttons. He recalled a danger in another connection which occurred in a rabid dog. It was an animal under suspicion and the owner was allowed to visit it. One day when it was visited it appeared to be much better. The next day it was dead, the cause of death being rabies.

Mr. R. E. L. Penhale said he had seen spontaneous recovery in three or four cases of telescoping of the bowel. The animals recovered following the passage of a mucus cast.

Mr. H. K. Roberts asked if a general or a local anæsthetic was preferable.

Mr. E. G. Bovett suggested that spinal anæsthesia might be useful. With regard to opening the abdomen, he still "speyed" cows annually. The animals were operated on "off grass" and were turned back on to grass. Very little after-treatment was necessary and the animals did well. With regard to false bands in the abdomen, he had not met with the condition in cattle, but he had come across it in mares. He mentioned a mare which had no bowel action for 24 hours before he saw her, and which, in spite of treatment, died eight days later without the bowel acting.

Mr. E. B. D. Hall asked if Mr. Harvey thought the cause of the trouble in the bones he exhibited was decalcification or the activity of micro-organisms? With regard to the use of chloroform in cattle, he had seen severe nasal bleeding following its administration.

Mr. F. T. Harvey said he could endorse most of the remarks made by Mr. Smythe. The difficulty of diagnosing intestinal obstruction was admitted. It was bad practice, however, to let animals die when operations, exploratory and otherwise, could be carried out with a reasonable margin of safety. The fear was that on operating you might find nothing definite or something different from that expected, but human surgeons often got a blank when they opened an abdomen, and thus the latter (abdomen) had been described as a bundle of surprises. When there was a slight diarrhœa, some difficulty might arise. Thus a bullock with slight diarrhœa, extreme lordosis, much pain, backing, etc., was sent in for observation and operation if necessary. When taken out of the float a dramatic change was noted, the animal appearing quite normal. Here possibly some mechanical obstruction had been naturally relieved. Such a case, however, was no guide. One had to operate while success is possible, or continue "fiddling while Rome is burning."

Some time ago a gelding was seen with a strangulated scrotal hernia; attempts at reduction were unsuccessful, so it was decided to cast the animal and if necessary to operate. On reaching a field about 300 yards away the animal began eating grass. The hernia had disappeared. Fourteen days later the bowel was again strangulated. Within four hours the scrotum was opened, the internal ring cut through, and the bowel returned. The horse made a good recovery. About the same time another gelding had been in pain with a strangulated hernia for some thirty hours. This animal died as soon as he was placed in position for operation.

When exploring an abdomen it was wise not to give up the search too soon, or something might be missed. He exhibited a specimen of intussusception taken from near the pylorus of an animal which died on the sixth day.

In reply to Mr. Hall's question as to the ulceration in the bone specimens being due to decalcification or to the activity of micro-organisms, Mr. Harvey said the lesions were obviously the result of the activity of organisms which, he suggested, had gained access to the circulation through defects in the skin caused by symbiotes, and had eventually found a suitable place in the joints to multiply.

Mr. Smythe's Reply

Mr. E. R. Smythe, replying to the points raised in the discussion of his paper, said that Mr. Gibbings mentioned the extraordinary incidence of cases in batches. About two years ago, he (Mr. Smythe) had seven cases of intestinal obstruction in cattle in three months, and then none for months. He thought it was criminal not to open an abdomen when obstruction was suspected. An exploratory operation should be carried out. If nothing were found, the manipulation of the intestine often did good. It might shift a slack twist or stimulate peristalsis. He had been asked how long one should wait before operating. He operated as soon as he had any suspicion, having regard to the absence of peristalsis, attitude of the patient, and results of rectal examination. Early operation was most advisable. With regard to resection of the bowel, he thought that might be possible. He had seen some reference to a tube of turnip being used as a substitute for a Murphy's button in this connection. He thought it might be possible to split the bowel and remove the telescoped portion after adhesion had occurred. He had slit up the bowel to effect the removal of sand. Probably if a piece were to be removed, a lateral anastomosis would be the best method, but this would not always be possible owing to the varying calibre of the bovine intestine.

He had seen mucus casts come away from the bowel which might be mistaken for a cast-off intussusception. They resembled casts which were sometimes coughed up by pneumonic calves following intra-tracheal injections.

He thought under the Anæsthetics Act it might be essential to use a general anæsthetic: he often combined a local and general anæsthetic. He thought that spinal anæsthesia had not much action in front of the haunch. Mr. Hall had remarked that he had seen severe nasal bleeding following the use of chloroform, but he thought chloroform was not the cause.

* At a meeting of the Western Counties Division, N.V.M.A., Exeter, October 19th, 1932.

XUM

Clinical Communications

"INTERESTING CLINICAL CASES"*

C. R. GOLLEDGE, M.R.C.V.S.
Trowbridge, Wilts

In introducing a few unusual clinical cases with which I have come in contact during the year, I have confined myself chiefly to those affecting the smaller animals, since the other members who are opening discussions to-day are dealing entirely with the larger ones.

Pyometra in the Bitch

This common condition, encountered in old bitches, although sometimes responsive to treatment with such agents as potassium iodide and hæmorrhagic septicæmia bacterin, etc., usually necessitates hysterectomy. I have carried out a fair number of these operations both in bitches and cats, and find that in well-advanced cases of pyometra, even when complicated with peritonitis, there seems to be quite a good chance of recovery after operation.

This is well illustrated by a case I had last spring of pyometra in a ten-year-old bitch.

I have brought with me a photograph of this bitch taken 48 hours after operation, showing the excised uterus and ovaries, which weighed 2 lb. 12 oz., the extended horns measuring 38 in. from ovary to ovary.

Although, owing to bad photography, the end of one uterine horn is not included in the photograph, the stump of the amputated body is shown quite clearly and should allay the doubts of those accustomed to listening to fishing stories!

The bitch was running about the day after operation and never appeared much the worse for it. I cannot, however, claim an uneventful recovery, there being a little trouble with deep sutures and a vaginal discharge, both of which responded to appropriate treatment.

A recent letter received from the owner states that the bitch is "in better condition than she has been for years and is like a four-year-old."

* Presented to the Mid-West and South Wales Division, N.V.M.A., at Cardiff, October 21st, 1932.

. . . . . .

Intussusception in a Pekingese

A ten-weeks-old Peke was brought to the surgery with about 3 in. of bowel protruding from the anus. Examination revealed that it was not a case of ordinary prolapse but an intussusception, and an immediate operation was advised.

However, circumstances necessitated the destruction of the dog, and as a matter of interest an autopsy was carried out.

On *post-mortem* I found that both small and large intestines were involved in the intussusception, the invagination having started in the vicinity of the junction of the ileum and large intestine, and having been predisposed to by the absence of an ileo-cæcal valve. The small and large intestines were continuous and the cæcum was represented by a small vermiform appendix about ¾ in. long.

. . . . . .

Carcinoma of the Fauces in the Dog

Professor Wright commented, at Folkestone, upon the prevalence of this condition, but it is not until recently that I have realised that it is so common.

Since the Congress in August I have had three cases, and I would impress upon practitioners the necessity for a very thorough examination of the pharynx in all cases of suspected pharyngitis in old dogs, since in the early stages carcinoma of the fauces may be overlooked.

Progressive loss of condition, dysphagia and howling when the mouth is opened are quoted by Professor Wright as being the common symptoms. In the cases I have seen there has been a disinclination to have the mouth opened, but no howling has been noticed. Dysphagia is, of course, pronounced when the carcinoma has attained any size, but in my experience has not been observed in the early stages. Coughing and retching does not always accompany the disease, although one would expect it. I have found the most constant symptom to be dribbling from the mouth on the affected side, all cases I have seen having been unilateral. When advanced, metastatic lesions often occur in the pharyngeal lymphatic gland on the affected side and cause considerable swelling which is easily discernible externally.

On opening the mouth and examining the fauces by depressing the tongue, the neoplasm can be easily seen and has the appearance of a lump of granulating tissue.

Treatment, as might be expected, is hopeless.

. . . . . .

Tuberculosis in the Cat

This, in my experience, is not a common condition and as my assistant had an unusual case

brought to the surgery last night I decided to include it in this paper.

The cat, a two-year-old castrated male, in spite of a good appetite, had been losing condition for a fortnight, during the last week of which dyspnœa and sneezing had been noticed.

Palpitation of the heart could be seen externally on the right side and on auscultation of the chest respiratory and cardiac sounds were very exaggerated on the right side and absent on the left.

Pleurisy, probably of tuberculous origin, was diagnosed and destruction decided upon. *Post-mortem* and microscopical examination confirmed the diagnosis, tubercle bacilli being present in large numbers in a smear taken from the affected lung.

The most remarkable thing about the lesions was that they were confined to the left thorax and that neither the bronchial nor mediastinal glands were enlarged or macroscopically affected. The left pleural sac contained 6 oz. of sero-purulent exudate and the left lung, which was collapsed in consequence, was full of tuberculous abscesses.

. . . . .

Hæmorrhagic Septicæmia in Cattle

I have experienced several outbreaks of what I have diagnosed as this disease affecting young cattle, usually about two years old, and have not usually had much trouble in dealing with it.

This year, however, I have met with the œdematous form of this condition, and consider it worth reporting on account of the sequel to treatment.

The outbreak in question occurred last June in a herd of 23 in-calf heifers. When first called in by the owner, six animals were affected, four being very ill.

The affected heifers exhibited the following symptoms: inappetence, staring coat, anxious expression, trembling of the limbs and bent knees, flanks very tucked, back arched, head and neck extended and disinclination to lie down or move. There was a copious reddish muco-purulent discharge from the nostrils and profuse lachrymation. Pulse and respirations were greatly accelerated, temperature being elevated to between 106° and 107°.

Owing to marked swelling in the region of the throat, extending down to the dewlap, dyspnœa, stertorous breathing, dysphagia and coughing were pronounced. The skin over the throat, neck and dewlap was very diffusely thickened, having a similar feel to a large reaction to the intradermal tuberculin test.

Injections of hæmorrhagic septicæmia bacterin were given to all the cattle with the gratifying result that no more contracted the disease. The affected heifers were, of course, isolated. Two of these recovered, but, in spite of medicinal treatment, vaccination, external applications, including poultices, and in one case tracheotomy, the four most badly affected heifers failed to recover completely, and were ultimately sold for next to nothing. These four heifers appeared to recover from the disease itself and fed well, but failed to put on flesh and never ceased snoring. This stertorous breathing was undoubtedly due to paralysis of the larynx, as no swelling of any sort persisted in the region of the throat after treatment. It would be interesting to hear if any other members have experienced this trouble following an attack of hæmorrhagic septicæmia.

I am afraid some of the cases mentioned do not provide much scope for discussion, but hope that they have at least proved interesting.

Discussion

Captain J. R. Hewer thanked Mr. Golledge for his interesting remarks on the various cases he had brought forward and congratulated him on the success of his operation in such an advanced case of pyometra. The speaker asked Mr. Golledge to describe how he ligated the uterus, etc., and also his method of invaginating the stump sutures.

Captain Hewer remarked that he had had quite good results by treating several of these cases by glandone tablets.

Mr. W. R. Watson, after thanking Mr. Golledge for his most interesting clinical cases, said, in reference to pyometra of the bitch, that his operations had been few—four altogether; two did well, and two died, but he had many recoveries by the internal administration of sodii hyposulph. and the intra-muscular exhibition of pituitrin. He found the condition difficult to diagnose with any certainty before the discharge appeared at the vulva.

Captain J. J. Aveston also thanked Mr. Golledge for his paper, particularly his description of the operation for pyometra. Personally, he had very good results from the use of adrenalin and colloidal manganese. In his opinion, the operation should only be done as a last resource.

Mr. J. C. S. Powell said that he found it very difficult to diagnose cases of pyometra before there was any discharge from the vulva, and asked Mr. Golledge what were the diagnostic symptoms.

Mr. R. W. Hall observed that Mr. Golledge's description of his method of sealing the stump after removal of the uterus was interesting. The early symptoms of a bitch suffering from pyometra could be easily confounded with gastric irritation, but he had noticed that when there was a free discharge the nausea and excessive thirst were less evident, but when the discharge became less or ceased then vomiting and excessive thirst became more evident: that was a help in differentiating this disease from gastric trouble.

Mr. C. J. Pugh remarked that, in his opinion, pyometra was best treated by operation, as in his experience medicinal treatment was not of much service.

He thought that the sealing up of the stump of the womb by inversion, as described by Mr. Golledge, was most essential to the success of the operation.

The Reply

In reply to Mr. Watson, Mr. Golledge said that he had made no attempt to deal with treatment in a comprehensive manner in his paper; hence

the omission of any remark regarding pituitary extract. He had used pituitrin in quite a number of cases of pyometra without much success. He was of the opinion that in the majority of cases nothing other than an operation was likely to be effective. In support of this he was pleased to hear from Mr. Pugh that hysterectomy was carried out extensively in such cases at the Royal Veterinary College, in preference to medicinal treatment, there being a far greater chance of recovery if performed in the early stages of the disease.

Although in some instances an apparent cure was effected by medicinal treatment, there was always a great doubt as to whether the cure was permanent. Most cases of pyometra were well advanced before being brought to a veterinary surgeon; the uterus was usually much enlarged and contained a considerable quantity of pus, and he could not conceive how any ordinary treatment could bring about a complete cure. A course of injections of pituitrin would probably evacuate most of the pus if the *os uteri* was well open, but some was almost bound to remain and cause a recurrence of symptoms at a later date.

Naturally, many owners would not go to the expense of an operation, and then one had to resort to injections and medicines of various kinds and hope for the best. He had not used sodii hyposulph., but would give it a trial.

Captain Aveston had mentioned injections of adrenalin and collosol manganese, the former being used in place of pituitrin to evacuate the pus and the latter, in conjunction with salol *per os*, to clear up the infection. He (Mr. Golledge) used collosol manganese on the bitch mentioned in the paper.

About a fortnight after the operation a purulent, blood-stained discharge was noticed to be dropping from the vulva and was thought to be due to infection of the cervix or stump.

Treatment consisted of injections of collosol manganese and hæmorrhagic septicæmia bacterin, vaginal douches of chinosol alternated with the insertion of salol and iodoform pessaries, and quinine sulph. and potassium iodide were given *per os*. Rather an elaborate treatment, but nevertheless very successful!

Referring to Mr. Powell's question regarding diagnosis before there was any discharge, Mr. Hall had kindly provided part of the answer by enumerating the usual symptoms—nausea, excessive thirst, vomition, etc. However, since these symptoms were common to many other diseases, they could hardly be considered as diagnostic. In some cases the distended horns of the uterus could be easily felt on palpation of the abdomen, but such an examination in some bitches, especially if fat, was unsatisfactory.

According to Professor Wright an examination of the cervix *per vaginam* was of great assistance, there being, as might be expected, a marked difference between the cervix of the healthy and unhealthy uterus. He (Mr. Golledge) had not yet had the opportunity to try this, but intended doing so as soon as possible. It was, of course, essential to become well acquainted with the contour of the healthy cervix before attempting diagnosis.

The urine should always be tested to exclude hepatitis, nephritis or diabetes, the latter being much more common in dogs than might be expected.

In answer to Mr. Hewer's enquiry regarding ligating the ovaries and stump, Mr. Golledge stated that the ovaries and large blood vessels were ligated in the ordinary way. The method adopted when dealing with the stump was by invaginating the end and anchoring a piece of omentum over it as described by R. H. Smythe in the *Veterinary Record* dated October 3rd, 1931. [At Mr. Hewer's request Mr. Golledge demonstrated this to the meeting.]

Apparently, proceeded Mr. Golledge, Mr. Stewart considered treatment of any sort hopeless if there was a copious discharge from the vulva. That this was not so was proved by the fact that in the case of the bitch referred to nearly a pint of pus was evacuated from the womb the day before the operation.

Captain Aveston said that he considered diabetes in the dog to be almost non-existent.

In reply, Mr. Golledge stated that as he had had about five cases during the last 12 months it could hardly be called a rare disease in dogs.

He thought that more use should be made of the common urine tests as an aid to diagnosis.

* * * * *

PRIEZ-NOCARD BACILLUS INFECTION IN CATTLE*

W. R. WATSON, M.R.C.V.S.
Thornbury, near Bristol

Subject.—First-calf heifer, Guernsey, three weeks calved.

General Condition. — Appetite dull, milk lessened, fæces and urine normal. Apathetic and uninterested appearance.

Clinical Condition.—Pulse fast, not so full as normal, and very clean cut. Temperature 104·5°. Respiration slightly accelerated and markedly so after moving round the box. Auscultation revealed a patch of congestion about the lung centre. Heart sounds accelerated, clear, but distant. No muffling or blanketing, but gave the impression of the heart being far away. Stomach and bowel sounds normal. Eyes clear, bright, and no congestion of membranes. Knees and hocks appeared slightly swollen.

The disease was slowly progressive and lasted 12 days, when the animal was slaughtered.

The noticeable conditions which were progressive were: (1) the right lung lost the congestion, but both lungs became solidified at the base; (2) the heart and pulse became faster and weaker, but retained their clear-cut sounds and pulsations. A small amount of pericardial effusion took place which could be heard as a clear, tinkling sound; (3) the knees and hocks became much swollen and very painful, so that the heifer was unwilling to rise, but fed, ruminated and defæcated while recumbent, although the appetite became very uncertain and required tempting with various kinds of food. The skin over the knees became bruised and necrosed.

Frankly, I could not diagnose the condition and told my client (a medical man) that I could only say it was a case of obscure heart disease. Mr. Perry was called in consultation, and advised slaughter.

* Presented to the Mid-West and South Wales Division, N.V.M.A., at Cardiff, October 21st, 1932.

Post-mortem revealed hyperstatic congestion of the bases of the lungs. There was a tumour-like growth as large as a walnut on the left ventricular endocardium, of the consistence of rubber and cutting with a yellow, glistening surface.

The tendon sheaths of the knees and hocks were filled with a semi-coagulated synovia, almost purulent in appearance.

The heart was sent to Professor Hare, of the Royal Veterinary College, who reported that the lesion was caused by the Priez-Nocard bacillus—an organism which was not infrequently responsible for disease in cattle.

Two weeks later I was called in consultation with Colonel Jelbart, of Dursley, to a Friesian heifer three weeks after calving under similar conditions and exhibiting similar symptoms to the former case. I diagnosed Priez-Nocard bacillus infection, had the heifer destroyed, and *post-mortem* revealed the same ventricular lesion, which was again confirmed by Professor Hare.

A few weeks later I came across another similar case, making three cases in six weeks. I have never, to my knowledge, seen a case before or since.

DISCUSSION

Mr. C. E. Perry said he was called in too late to make a diagnosis, but suspected a foreign body and advised slaughter, which was carried out at once. The *post-mortem* revealed the peculiar lesion in the wall of the left ventricle, about the size of a bantam's egg and of the consistency of rubber, and which cut with a smooth surface, as described by Mr. Watson.

Mr. C. R. Golledge expressed his thanks to Mr. Watson for bringing forward a subject which was of more than usual interest to him. Only a short time ago he had experienced a case in a seven-year-old Shorthorn milch cow similar to those cited by Mr. Watson. The symptoms exhibited—chiefly those of great thoracic pain, especially noticeable on percussion over the region of the heart, *viz.*, pronounced grunting, palpitation of the heart, cording of the jugular veins, œdema of the dewlap, a temperature of 104° and a history of having had an attack of indigestion three weeks previously—led to a diagnosis of heart disease, thought to be of traumatic origin, and destruction was advised.

No fluctuation of exudate in the pericardium could be heard, but the owner was informed that this would probably develop in a few days if the animal was allowed to live. This, as a matter of fact, was what did occur.

The animal ultimately died, and *post-mortem* examination revealed an exactly similar condition of the heart to that described by Mr. Watson.

Mr. Hall Masheter thought that the thanks of the meeting were due to Mr. Watson for bringing forward that subject for discussion. In his view, this condition, being a disease of many ramifications and affecting most animals, merited the production of a special paper. It was of interest to the general practitioner, especially in country districts, and should prove of great interest to those practitioners, whether whole- or part-time, who were entrusted with the carrying out of the Tuberculosis Order and to practitioners employed in meat inspection—for although the infection simulated true tuberculosis, it was definitely a false one.

Since the discovery of Koch's bacillus such processes only were classified under the head of tuberculosis as could be demonstrated to be due to that bacillus. Changes that resembled those of tuberculosis from an anatomical point of view and especially those that were associated with the formation of nodules which bore a resemblance to true tuberculosis, but were due to the pathogenic action of other bacteria, were occasionally observed in the internal organs.

Such cases were usually classed under the general name of pseudo-tuberculosis.

From the study of that infection the *Bacillus pseudotuberculosis ovis* and the *Bacillus pyogenes bovis et suis* seemed to be implicated in the cases he had met in practice.

Preiz cultivated in the *Bacillus pseudo-tuberculosis ovis* from the nodules in the kidney of a sheep, and, according to later investigations, that bacillus was identical with that causing ulcerative lymphangitis in horses, and also to that causing contagious acne of horses and contagious pustular dermatitis of cattle. Kitt demonstrated its presence in broncho-pneumonia of cattle, Sivori in broncho-pneumonia of sheep, Nocard in catarrhal pneumonia of calves, while Dunkel, in his comparative investigations, arrived at the conclusion that the *Bacillus pseudotuberculosis* and the *Bacillus pyogenes bovis et suis* are variations of the same series because, amongst other things, the *Bacillus pyogenes*, after being passed through the rabbit, assumes the appearance of *Bacillus pseudotuberculosis* when inoculated into sheep.

The fact that the pyo-bacillus occurred in pure culture *only* in metastatic abscesses, but was always associated with other pathogenic bacteria in the lung lesions, made it appear probable that it played only a secondary part in lung affections.

Bacillus pyogenes bovis was found in peritonitis due to foreign body, metritis, arthritis in calves and various broncho-pneumonias in both young and old animals; in mastitis, especially in that associated with septic and catarrhal metritis.

According to Holth, *Bacillus pyogenes bovis* is especially indicated by a thin milk-like secretion of the udder with dense yellow flakes, and also by a purulent fœtid secretion.

Nodules of pseudo-tuberculosis occurring in the internal organs, serous membranes and in subcutaneous connective tissue had a naked-eye appearance of true tuberculosis but had a different internal structure.

Whilst degeneration and necrosis of the tissue elements did *not* occur in true tuberculosis, except in its very advanced stages, the tubercles of pseudo-tuberculosis underwent cheesy degeneration at an early stage.

As seen by the naked eye, even the smallest nodules appeared white or greyish white—were of rather a soft consistency, and the larger ones were creamy. Lime salts were *occasionally* deposited in the substance, which was encased by a grey, translucent, comparatively thick, tissue capsule.

In the majority of cases, the morbid processes even in animals that had died, were confined to the intra-thoracic and external lymph glands, or to the latter only.

The mesenteric glands were only very rarely affected.

Symptoms of Preiz-Nocard Infections.—If the morbid changes were limited to the internal

XUM

organs, the disease was not discovered until the animals were slaughtered. In other cases, the affection of the lymph glands might be recognised during life by the presence, in various parts of the body, of painless tumours, sometimes as large as a man's fist. These tumours occurred most frequently in the prescapular and precrural lymphatic glands.

The general health of the animal was affected only to the extent that those enlarged glands might interfere to a certain extent with locomotion.

He personally thought that the chain of nodules one saw on the neck, shoulder, flank and shins of cattle were also pseudo-tuberculosis nodules. They were painless nodules in the subcutaneous connective tissue, and when excised a thick creamy discharge was evacuated.

The affection of the lungs manifested itself as a chronic broncho-pneumonia. In some cases the tumours were localised in the udder, which became swollen and showed an uneven surface due to the caseous purulent foci, which, upon pressure, discharged a flocculent saffron yellow fluid.

In practice he had seen—especially since the Gloucestershire County Council instituted the twice yearly inspection of cows—eight cases of lymphadenitis caseosa, the animals being affected in either one prescapular or one precrural gland.

In only one case had he noticed its presence in more than one gland. This was in an aged Welsh cow. Both prescapular and both precrural glands were enlarged, as well as the udder, which was much swollen and hard in places, and which, on *post-mortem*, showed large abscess formation.

The chain formation in the sub-cutis was, he thought, quite as prevalent as the enlargement of the glands, but both were of comparatively rare occurrence.

At the present time he had one case of septic metritis associated with mastitis, and two other cases of mastitis giving the flocculent saffron yellow discharge associated with the Preiz-Nocard bacillus infection.

It might be of some interest if he mentioned that he had seen these enlarged glands in horses; he could remember four cases, and only the precrural glands were affected.

MEDICAL CURRICULUM REFORM

At the invitation of the University of London, the Universities of Oxford and Cambridge and the Royal Colleges of Physicians and Surgeons recently appointed representatives to consider, with representatives of the University of London, the present defects of the medical curriculum and to make suggestions for reform.

The University of London was led to take action owing to a recommendation of the Board of the Faculty of Medicine of the University, which had been giving consideration to various criticisms of the medical curriculum made during the session 1931-32. In addition to having received definite criticisms, the Board of the Faculty was aware that the present position of medical studies was viewed with concern elsewhere and that action by the University of London would be generally welcomed.

At the first meeting of the conference, Lord Dawson of Penn was elected chairman, and Mr. G. W. Rossetti, of the University of London, was appointed secretary to the conference. The conference intends to call evidence and to review the whole course of medical education. It is hoped that a report will be issued during 1933.

Auto-Abstract

CONTRIBUTION TO THE DIAGNOSIS AND ERADICATION OF JOHNE'S DISEASE

by

DR. M. J. J. HOUTHUIS,
Sliedrecht

[Thesis written at the Instituut voor Parasitaire en Infectieziekten (Director: Professor Dr. L. de Blieck) and the Pathologisch Instituut (Director: Professor Dr. H. Schornagel) der Veterinaire Faculteit der Rijks-Universiteit at Utrecht.]

Sliedrecht, a small Dutch town of some 14,000 inhabitants, is the centre from which I carry on my practice as a veterinary surgeon. It is situated in a part of Holland in which Johne's disease is on the increase and where several small herds (about forty), suffer an annual loss from this disease ranging from 12 to 15 per cent. In 1931 an average weekly destruction of seven or eight cows, due to Johne's disease, took place. This increase is to be anticipated from the mode of spread of the infection: the usual method of diagnosis of cases showing a *persistent diarrhœa* with emaciation and exhaustion is by demonstrating the presence of acid-fast bacilli in the fæces. Another consideration favouring the spread and consequent increase of the disease is the recognition of symptoms by observant agriculturists who, quite naturally, hastily dispose of their suspects on the assumption that the first loss is the smallest. It is unnecessary to enlarge on the incalculable harm which such an animal may cause to its newly-acquired owner.

Diagnosis

As a result of the published work of English and American investigators concerning the diagnostic value of allergic reactions in Johne's disease, it was decided to investigate this point in 44 animals bought from different herds, most of which were more or less under suspicion.

In addition to an extensive and prolonged clinical research the values of the following biological preparations were compared: Johnin Sheather; Johnin Dunkin; Paratuberculin and Avian-tuberculin (Rijks-seruminrichting); Bovine-tuberculin (de Blieck) and the author's Phleine.

These agents were given intradermally in two doses (a sensitizing and after the lapse of 48 hours a test dose)—(" Tuberculin Tests in Cattle," Medical Research Council's Special Report Series No. 94, 1925.)—the results being shown in accompanying charts to be found in the text. Swelling in the cutis, sub-cutis and evidence of heat and pain were at times seen at the site of injection.

In positive cases the swellings of the cutis and

sub-cutis were merged in one and the skin was observed to be adherent to the subcutaneous tissues.

A swelling resulting from an injection in a normal beast is bullet- or nut-like, encased in the thickness of the skin, easily taken up between finger and thumb and is not adherent to the subcutaneous tissue.

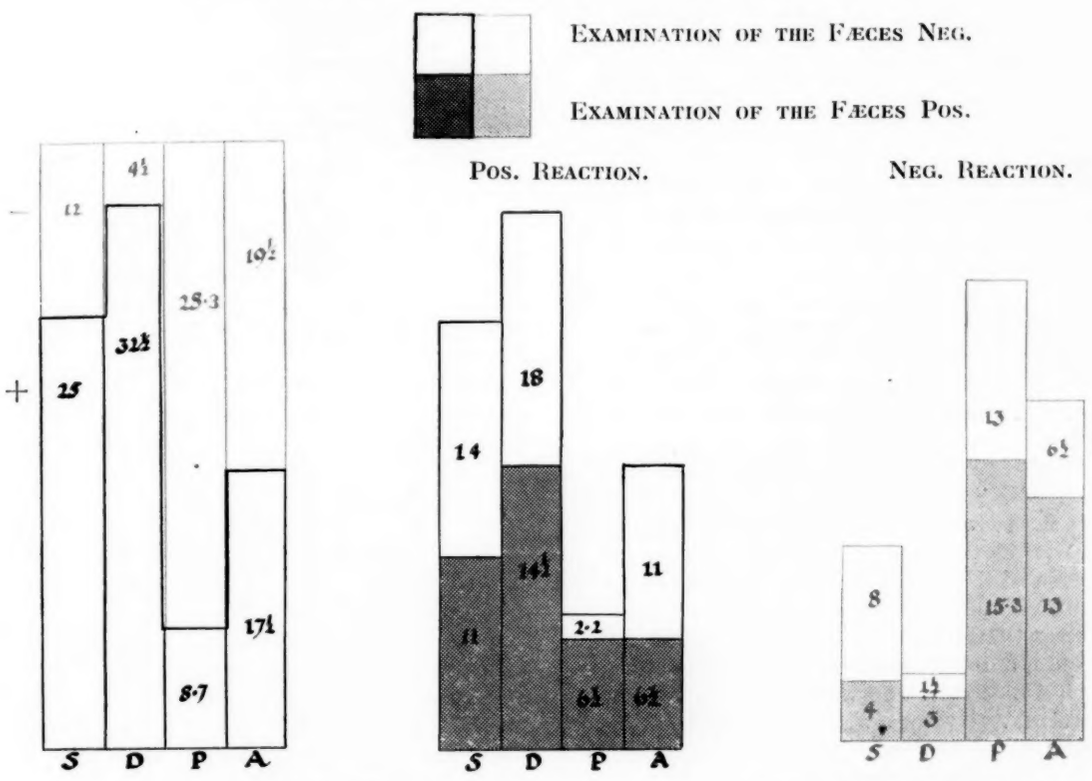
One can give several injections of different products at the same time and to the same animal without any one influencing the other ("A Method of Determining the Potency of Tuberculin for Tuberculous Cattle,"—J. B. Buxton, *Veterinary Record*, 1925, Vol. 5, p. 587).

The doses used in this work were 0·2 c.c. followed by a similar dose in 48 hours, injected in the same spot, in all cases except that of bovine tuberculin (de Blieck), in which the dose was 0·1 c.c. similarly repeated.

A careful *post-mortem* examination of all the animals was made and organs were subjected to an intensive histopathological examination.

The examination of fæces for groups of acid-fast organisms is uncertain: in my opinion, based on many years' experience of the disease, a diagnosis can only be made in this way in about 10 per cent. of cases. Many weeks may elapse before one's examination is rewarded with confirmation of one's suspicions, but in Holland this is the method usually adopted by the various research institutes. Diagnosis arrived at in this way can always be confirmed by a careful *post-mortem* examination.

RESULTS OF THE DIFFERENT BIOLOGICAL TESTS



* S. = Johnin Sheather.
D. = Johnin Dunkin.

P. = Para-Tuberculin.
A. = Avian-Tuberculin.

With Johnin Sheather a positive reaction was found in 25 cases; of these 25 + cases there were 14 with a negative examination of the fæces; of the 12 − cases there were four with a positive examination of the fæces.

Converted to the same percentage:—

With Johnin Dunkin a positive reaction was found in 32½ cases;

Of these 32½ + cases, there were 18 with a negative examination of the fæces;

Of the 4½ − cases, there were 3 with a positive examination of the fæces.

Intradermal reaction in four cases with a negative *post-mortem* examination:

		S*		D*		P*		A*
1	...	−	...		...		...	
2	...	+	...		...		...	
3	...	+	...	+	...	+	...	+
4	...	−	...	−	...	−	...	−

Johnin Sheather twice gave a positive indication when tuberculosis only was found on *post-mortem* examination, and Johnin Dunkin once.

If, as is supposed, the Johnin test is specific, it

is desirable that the tuberculin test be also applied with a view to eliminating tuberculosis, and in this connection I am of opinion that the double intradermal test gives better results than the ophthalmic.

Examination of Fæces.—Of the 44 animals examined, "groups" of acid-fast organisms were found in 14 (31·8 per cent.) and it must be added that all examined animals were sold on account of intermittent or constant diarrhœa.

General Condition.—Many (27) of the examined animals were emaciated; in nine the bodily condition was good and in five excellent. It would therefore appear that the clinical symptoms as described by B. Bang and others, namely, poor condition with no diminution of appetite, *only apply to advanced cases.*

Age.—Johne's disease chiefly affects animals after their first calving (2½ to 4 years of age), but animals of 6 to 9 years, and even some of 12 to 14 years and older, have also been encountered.

Post-mortem Examination

PATHOLOGICAL ANATOMY.

Characteristic lesions are to be found in the lining membrane of the intestinal tract.

The frequency of the location in the different parts of the intestines is not unimportant, in spite of what is said to the contrary in literature on the subject.

In 22 of the examined animals (50 per cent.) I found a diffuse thickening throughout the whole of the small intestine. This result is not in keeping with the expressed opinion of Twort and Ingram that the duodenum in cattle never seems to be affected.

In 18 cases I found the mucosa throughout the duodenum distinctly swollen; in 11 cases partially and in two cases the thickening was doubtful.

The mucosa of the cæcum and of the ileo-cæcal valve was thickened in 50 per cent of the cases.

In one case there were found in the blind sac of the cæcum a large number of *ulcers* with a diameter of a half c.m. and nearly 5 c.m. distant from each other.

The mucosa of the colon was extensively swollen over the whole length in ten cases.

The rectum was seldom attacked, but in a few instances I found the bowel wall thickened and in only rare cases was I successful in demonstrating acid-fast bacilli in the mucous membrane.

The thickening of the submucosa is principally œdematous.

In heavily infected cases the thickness of the mucosa and submucosa reached a dimension of ½ c.m. to ¾ c.m., *but several cases were found in which macroscopic evidence of the disease was lacking.* In these last cases the aspect of the infected mucosa had undergone little or no change; the peculiar colour-change was often absent and the mucosa seemed to be quite normal, although on microscopical examination evidence of the disease was definite.

Except in very definite cases, diagnosis could not be made by macroscopical examination only.

The mesenteric glands as a rule were swollen, but in varying degree and sometimes they appeared to be quite normal.

On section a serous milk-like fluid frequently escaped.

My experience goes to show that in those cases where, by ordinary smear examination of those parts of bowel or mesenteric gland which appeared to be affected, acid-fast organisms either could not be detected or only with difficulty, the only sure way of making a definite diagnosis is a thorough histological examination of the tissue.

It would appear that the extent of the diarrhœa present during life is little or no guide to the extent of the pathological changes which are seen on *post-mortem* examination.

PATHOLOGICAL HISTOLOGY.

Although I succeeded in isolating acid-fast organisms in organs other than intestines and mesenteric glands, *e.g.*, liver, lungs, portal glands, and although it is probable that careful research of advanced cases will support this finding, I hold the view that they are rare and unusual situations. Moreover, it is not suggested that these locations indicate a tendency to generalisation (H. Goloff) or in any way influence the clinical progress of the disease.

Infection is usually brought about by ingestion of infected material, and organisms eliminated from the lesions just set up may be the cause of further infection.

Histologically my results agree in principle with what is to be found in the literature.

Lymphangitis paratuberculosa and destruction of the glands of Lieberkühn have been seen several times.

As a result of histological examination I have formed the view that the main channel by means of which the disease is allowed to progress is the lymphatic system, but the alterations which have been observed in the structure of blood vessels in the neighbourhood of the lesions suggest that spread by means of the blood stream must not be overlooked.

In the solitary case (No. 16) in which ulcers were seen in the blind end of the cæcum, one naturally seeks for a satisfactory explanation of this very unusual occurrence. Their appearance is, in all probability, due to disturbance of the circulation as a result of the massive invasion of the submucosa and this case suggests itself to me as being one, admittedly exceedingly rare, of secondary infection.

It is of importance to call attention to the fact that in a number of the cases examined evidence was afforded that seemed to show that

the bacilli in Johne's disease can disappear partly and perhaps completely.

Whether this apparent disappearance must be looked upon as a temporary correction or as a commencement of recovery cannot be decided for the present, and it will be very difficult to prove the point, because most of the arguments which one can bring to bear are of a negative character.

In the larger table in the text the results of the whole examination are surveyed.

The Transmission Experiments with small experimental animals yielded negative results.

Two calves were infected with material from cases of Johne's disease a year ago, one by intravenous inoculation and the other by feeding the mucous membrane of an infected animal.

The animals are still under observation and quite healthy.

The Johnin reactions, which were at first negative, became positive after six months. (Johnin Sheather and Johnin Dunkin.)

The fæces of these animals have been examined for acid-fast bacilli over and over again, without any result.

In addition to these 44 examined animals, a heavily infected herd of 42 animals, with an annual loss of six due to Johne's disease, was examined and the results are given in a second table in the text.

The reaction with Johnin Sheather was positive in *two cases* and with Johnin Dunkin in *20 cases* (besides four cases with a doubtful reaction).

Cows No. 9 and No. 20, reacting to Johnin Sheather and to Johnin Dunkin, were killed.

A *post-mortem* examination confirmed the diagnosis in the case of No. 9, but in the case of No. 20 the diagnosis was not confirmed, although this animal was gradually losing condition after calving, gave no milk, and diarrhœa was absent.

The histological examination was very doubtful but no acid-fasts could be demonstrated.

With cow No. 3, reacting to Johnin Dunkin only, the positive *post-mortem* confirmation of the diagnosis was made.

Cow No. 11, reacting *only* to Johnin Dunkin and to bovine tuberculine de Blieck, eventually became a clinical case; *post-mortem*, Johne's disease was found as well as tuberculosis of the lungs.

Eradication of the Disease

In contra-distinction to tuberculosis, with which Johne's disease can in some respects be compared, the eradication of the latter can be effected more easily for the following two reasons:—

1. The location of the lesions being in the intestines, excretion of the bacillus takes place with the fæces.
2. Because such a dissemination of organisms is mostly seen in animals with diarrhœa.

No. 2 is rendered the more important by the fact that the diarrhœa, *i.e.*, the symptom recognised by the farmer, puts him on his guard.

However, as against these seeming advantages, there is at least one drawback, *viz.*, the difficulty of clinical diagnosis, except in cases where the bacilli can be found in the fæces.

The advantages mentioned can become useful only when we have at hand a diagnostic agent worthy of recognition which would enable us to diagnose Johne's disease in its pre-clinical stages.

Among the conditions which we would lay down for the eradication of Johne's disease, the manufacture and use of Johnin only *of the highest potency should be a rule.*

Eradication should be commenced on farms known to be badly infected.

The following measures have, in my experience, proved to be both practical and effective:—

1. Repeated intradermal Johnin tests of all animals during the housing period, *i.e.*, twice a year.
2. Accurate anamnesis of all animals, rendering work on animals, having had a short or long period of diarrhœa; a relatively simple matter.
3. Isolation of all animals with diarrhœa.
4. Examination of the fæces of all animals with diarrhœa and of all animals which have given positive reaction to Johnin several times.
5. All animals with acid-fast bacilli in the fæces should be slaughtered.
6. In cases of doubtful or negative reactions, whether or not suspicious cases, repetition of the intradermal test after six weeks.
7. Slaughter of all clinical cases.
8. The farmer should immediately report upon every case of diarrhœa, even slight cases (Isolation). Examination of the fæces, if necessary every day, and attempts at cultivation carried out as suggested by Dunkin.
9. All reacting animals should be fattened at the end of the milking period, if this is possible, and then sold for slaughter.
10. The greatest possible care should be taken of a paratuberculous-free herd of calves.
11. If possible, arrangements should be made for separate grazing of reacting and non-reacting animals; and contact of young stock with reacting beasts must be avoided.
12. Treatment of fæces with quicklime in adequate quantities and leaving the meadows free for at least a month as recommended by Dunkin.

It is desirable that Johne's disease should be added to the list of notifiable diseases scheduled in different countries.

XUM

Of the 24 conclusions the following are stressed:—

Conclusion 3.—In addition to the allergic reactions for the detection of Johne's disease, examination of the fæces should be made.

Conclusion 4.—The method of diagnosis by pinching off a bit of the mucous membrane of the rectum and examining it microscopically for acid-fast bacilli is quite useless in early cases.

Conclusion 5.—The diagnostic value of the biological tests is excellent, providing one uses a Johnin of the highest potency.

Conclusion 14.—Tuberculosis and Johne's disease are often seen in the same animal.

Tuberculosis is often found unexpectedly on *post-mortem* examination and often healed lesions are seen.

Conclusion 15.—In a herd of cattle infected with paratuberculosis, with an annual loss of a certain number of animals, cases of open tuberculosis are rarely seen.

Conclusion 16.—In order to obviate confusion, the tuberculin test should be applied simultaneously with the Johnin test.

Conclusion 17.—Intra-uterine infection most probably does not take place.

The arguments for this conclusion were founded on extensive histological examinations of both uterus and fœtus.

It is nevertheless very remarkable that several cases of Johne's disease in animals belonging to the same family (mother—daughter—granddaughter), were observed.

Conclusion 22.—The eradication of Johne's disease is only possible with a specific Johnin of high potency.

Sliedrecht, October, 1932.

WALES ASKS FOR BULL LICENSING

Montgomeryshire members of the Royal Welsh Agricultural Society of Welshpool have passed unanimously a resolution urging the Government to lose no time in putting into operation the Act for the compulsory licensing of stock bulls. The view was expressed that greater energy in Scotland and Ireland in the elimination of scrub bulls would injure the Welsh trade in store and stock with England if there was delay in enforcing the Act.

Mr. Charles James referred to the absence of entries in the classes for Welsh ponies at the Royal Welsh Show at Llandrindod. Whereas the classes for mountain ponies and cobs were well patronised, the nondescript pony seems to have gone out of favour, and it was decided to urge that this section of the prize list should be dropped and more classes provided for Shire horses, which are always a big feature at this show.

* * * * *

At a meeting of the Towcester Rural Council, the Sanitary Inspector reported that during the last month he had been present at 65 private slaughterings by farmers. So great had been the slaughterings, however, that 60 had to be left unexamined.

Reviews

"AN EYE FOR A HORSE"*

A past master in the art of selecting horses and ponies for specific purposes, and experienced in assessing points in the show ring, Lieut.-Colonel Goldschmidt in his latest book "An Eye for a Horse," makes a practical addition to his previous books "Bridle Wise," "Stable Wise," and "The Fellowship of the Horse." As he says, "the book is written for those who wish to save the time, expense, and annoyance inseparable from obtaining this wide experience, and to help intending purchasers to avoid the more obvious pitfalls."

As few horses are perfect, and most horses have points of conformation and other defects which militate against usefulness for particular work, he is at great pains to separate good points from bad, and to analyse their significance as a guide to the aspiring horseman. Precept and example are very suitably blended, and the book cannot fail to attract, and prove of value to those who aim at being "a good judge of a horse." The illustrations by Cecil G. Trew, and the various plates showing photographs and diagrams, add greatly to the instructional value of the book.

In the chapters "The Modern Saddle Horse" and "The Thoroughbred Horse," stress is laid on the Thoroughbred for saddle purposes, and the more weight his make and shape fit him to carry the better. He makes the best Hunter, the best Polo pony, Hack and Charger. Even the ideal Children's Ponies are miniature Thoroughbreds.

In Hunter breeding, the author remarks, there is confusion. To get what is considered a weight carrier, the breed, which ought to be Thoroughbred, has been mixed by using cart mares, vanners, etc. He advocates a Branch of the General Stud Book, to be just as exclusive as the existing one but to have as its object the breeding of a weight-carrying blood horse of about 16 hands. He hopes, too, that a race of Thoroughbreds will be evolved—bred with the object of carrying 14 to 16 stones to hounds or at polo.

In a chapter relating to the factors that govern temperament, the horse's conformation, education and stable management are discussed. It is impossible to *force* a horse to do anything. The perfect hunter temperament embodies many virtues and allows of no vices. The possession of a "polo temperament" is presumed to enable a pony to take naturally to

* "An Eye for a Horse. A Guide to Buying and Judging." By Lieut.-Colonel Sidney G. Goldschmidt. Published by Messrs. Constable and Co., Ltd., 10-12, Orange Street, London, W.C.2. (Price 10s. net.)

his schooling for polo. Acquired characteristics are never inherited. A hack must have exceptional manners and a placid disposition. The regulation of food and exercise must be considered the principal secret of stable management, as feeding beyond the point necessary to get a horse fit, and maintain him so, reacts on his disposition and manners. Unskilled handling and misunderstanding of a horse's mentality create a refractory animal. If a horse's conformation and breeding are unsuited to his particular work, he will never take kindly to it. Mares, on the whole, are more amenable than geldings, though due allowance must be made for the vagaries of mares at certain seasons.

An excellent chapter is devoted to quality of material under the sub-headings of breeding, bone, muscles, tendons and ligaments, skin and hair, teeth, colour and markings. Leverage and the bony frame is also discussed as a factor making for weight-carrying power and ability to stay.

In appraising the make and shape of a horse, a general and detailed survey, covering three chapters, is enlarged on as the first duty, the animal being viewed from both sides, from the front, and from the rear. Size and weight-carrying power is discussed; and conformation in respect to the head, the neck, the slope of the shoulder and pastern, the withers, the back, the pelvis and quarters, the knee and hock to the ground, the hoofs, is especially commented on, and supported by illustrations of what are good and what are necessary to be avoided. A survey of the horse in movement, both in hand and ridden, is also dealt with in detail in a manner which is of practical importance. The author considers the ideal height for a hunter, even to carry a great weight, is 15·3 hands, and 15 hands for a polo pony. Speed is synonymous with breeding and action. Endurance is dependent on make, shape, symmetry and correct proportions, and weight-carrying power is a quality developed by selective breeding. All these factors are well explained in the book.

The last two chapters are devoted to the essential factor of trial before purchase. No matter how particular a prospective buyer has been with regard to conformation and general survey, unless a horse "rides well," or gives a good "feel" when ridden, disappointment may ensue. Hence the necessity for a good trial at the walk, trot, canter, and subsequently at the faster pace of gallop. And when a deal is contemplated, and a veterinary examination has to be made, the author recommends the advisability of the intending purchaser being present so that the veterinary surgeon can explain the significance of any shortcoming or deviation from actual soundness.

We strongly recommend the addition of the book to all sporting and veterinary professional libraries, and to the rising generation of sportsmen and sportswomen to whom horses and ponies are a pleasure. It is very desirable that they should profit by the experience of one who is well versed in the special uses to which horses and ponies are put.

* * * * *

[**The Physiological and Genetical Aspects of Sterility in Domesticated Animals.** By William Orr, M.R.C.V.S., and F. Fraser Darling, PH.D., N.D.A., N.D.D. (Imperial Bureau of Animal Genetics. Oliver and Boyd, Edinburgh. Price 2s. 6d.)]

This is a monograph consisting of 80 pages, 52 being devoted to text, and 28 to an extensive bibliography compiled by Miss M. V. Cytovich.

In the foreword, Dr. Crew describes how the work was initiated under the auspices of a grant obtained from the Department of Agriculture for Scotland, the facilities thus provided being placed at the disposal of Professor W. M. Mitchell, of the Royal (Dick) Veterinary College.

The authors have accumulated a vast amount of information in the 52 pages of text, most of which has already been published by workers on the subject in this and in other countries. One would have hoped to have seen more than a passing reference in the introduction to sterility in the mare, in view of its importance and the heavy losses annually incurred in thoroughbred stock.

It is stated, in this connection, that it has been suggested that a special factor operates in the causation of sterility in the mare, but no further information is vouchsafed unless it is to be gathered from the subsequent remarks that the restricted period of viability of the spermatozoa and the fact that mares too frequently are bred from irregularly, constitute the factor referred to.

Cervicitis occupies two pages. Nobody will dispute the statement that (this condition) "when it is uncomplicated by more serious disease of the adjacent genitals can be awarded a favourable prognosis if rational treatment be adopted." The characteristics of the normal and abnormal cervical secretion are described.

The uterus is dismissed in little over a page. Mention might have been made of the fact that endometritis is met with in heifers, even in virgin heifers before service. The statement that a relatively mild inflammatory condition of the oviduct would readily give rise to barriers insuperable to the passage of the ova or of the spermatozoa is questionable. No further reference is made to salpingitis.

In the discussion on cystic degeneration of the Graafian follicle, the statements are mostly recapitulatory. Most readers will prefer Nielsen's criterion of a cyst to that given by Frei. For the practising veterinary surgeon, it would have been as well to have clearly stated

that the best clinical criterion was the regularity or otherwise of the œstral rhythm, as it should be obvious that cows with a more or less regular cycle do not have cysts in their ovaries, and that a good many reputed cysts, not only in cows but in mares, are in reality ovisacs.

In nymphomania one would expect to have found some reference or some research carried out to determine if defectiveness of the adrenal, *i.e.*, a hypersecretion of the cortex, has any bearing on the glandular syndrome to which the name of nymphomania has been applied.

The paragraphs on cystic corpora lutea and persistent corpora lutea add nothing definitely new to the knowledge, although it is satisfactory to notice that emphasis is laid on the necessity of not making a too hurried diagnosis of the latter condition.

In discussing sterility in the male, mention might have been made of the condition of azoospermia and the fact that it may be of a temporary nature; and of the advisability of taking semen at intervals, after rest from service, before making a positive diagnosis. More emphasis might have been laid on the fact that motility of the spermatozoa is no guide to their fertility.

In a footnote to the chapter on "Nutritional Aspects," the authors point out that the subject is to be treated in detail by the Imperial Bureau of Animal Nutrition, Aberdeen. In view of the fact that vitamins only are discussed, and no reference is made to minerals, the chapter might without detriment have been left out altogether. It is to be hoped that when the report on this subject is published, this matter will be rectified.

An interesting chapter on "Sterility referable to Genetical Causes" completes the monograph.

As a compendium and reference to literature already published this monograph will prove valuable to those engaged in research work, and the admirable bibliography will be of assistance to those engaged in writing theses on the subject. It is evident, from the title of the book, that it is written for the physiologist and geneticist, but from the point of view of the general practitioner on the look out for the solution of those problems of sterility which he so frequently encounters, it is disappointing.

A warning against the practice—said to be prevalent in the Heague (Derbyshire) district—of slaughtering animals for human food on unlicensed premises and without giving notice to the authorities was contained in the annual report of the M.O.H. to the Urban Council. "Steps should be taken to stop this promiscuous killing, which is contrary to the meat regulations," stated the doctor. The chairman declared that pigs were being killed and people were hawking the meat after dark.

N.V.M.A. Divisional Reports

WESTERN COUNTIES DIVISION*

MEETING AT EXETER

A meeting of the above Division was held at the Rougemont Hotel, Exeter, on Wednesday, October 19th. The President, W. G. Blackwell, Esq., M.R.C.V.S., occupied the chair, and the following members signed the attendance book: Messrs. Blackwell, R. H. Smythe, F. T. Harvey, G. H. Gibbings, H. C. Wilkins, C. Masson, L. Norman, E. Thorburn, W. H. James, J. K. Irvine, L. W. Bovett, E. B. D. Hall, G. D. Lansley, E. C. Bovett, W. Roach, R. E. L. Penhale, C. V. Watkins, E. R. Edwards, H. K. Roberts, W. Wright, G. A. Roberts, R. Barons Nelder, W. B. Nelder, Major Fyrth, Major Rankin and Captain S. J. Motton (Hon. Secretary).

Apologies for absence were received from Professor Hobday, Major Ascott and Messrs. R. G. Saunders, J. C. Stephens, A. R. Smythe, H. W. Townson, G. Harvey and H. B. Kauntze.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read.

Correspondence. — Three letters from the N.V.M.A., dated October 6th, and one letter from the N.V.M.A., dated October 10th, 1932, were considered, and the Secretary was instructed as to the action to be taken. A letter was read from Major Ascott thanking members for the sympathy extended to him in his recent sad bereavement.

Free Treatment of Animals of the Poor.—Several members reported that they had not yet been approached by the Local Branches of the R.S.P.C.A., and the Secretary was asked to deal with the matter.

Dr. Sheather having unfortunately been prevented from attending the meeting, it was decided to invite him to address the next meeting of the Division.

Papers.—To fill the gap created by the absence of Dr. Sheather, two members stepped in and provided good material for discussion. Mr. E. R. Smythe, of Camborne, read a paper on "Volvulus and Intussusception in Cattle, and their Surgical Treatment," and Mr. F. T. Harvey, of St. Columb, contributed two short papers—one on "Suppurative Arthritis of the Pastern Joint" and the other on "Red Water—Hæmaturia—in Young Cattle."

[These papers, and a report of the discussion which followed their presentation, are reproduced elsewhere in this issue.—Ed., *V.R.*]

Clinical Specimens, etc. — Major Rankin exhibited a fractured os suffraginis, and Mr. S. J. Motton a pair of illuminated spectacles, McClean's teat-splitting instrument and a set of Trump's rollers for the removal of obstructions in teats.

---

* Received for publication, November 25th.

Very hearty votes of thanks were accorded the essayists for their papers and the President for conducting the meeting.

S. J. Motton, *Hon. Secretary.*

* * * * *

MID-WEST AND SOUTH WALES V.M.A.

CLINICAL MATTERS DISCUSSED AT CARDIFF

A meeting of this Division was held at the Queen's Hotel, Cardiff, on Friday, October 21st, 1932, when the following members and visitors were present: Messrs. J. R. Hewer (in the chair), J. W. Hall Masheter, W. D. Rees, R. Moore, C. Digby Watkins, G. H. Thomas, Wm. R. Watson, A. F. Good, J. S. Pike, B. Sayer, M. E. Williams, F. C. Hobbs, J. J. Aveston, R. W. Hall, E. C. Bovett, C. R. Golledge, C. J. Pugh, J. H. Stewart, J. C. S. Powell, J. L. Perry, and C. E. Perry, Hon. Secretary, with Messrs. T. J. Patterson and J. Pugh (visitors).

The following members sent apologies for non-attendance: Colonel Jelbart, Messrs. J. R. Baxter, J. C. Coleman, E. E. Seldon, Capt. Gallie, Mr. W. R. Williams and Captain W. A. Austin.

Mr. R. W. Hall raised objection to the use of the abbreviation "Vet," in an article in the *South Wales Dispatch.* After discussion, it was proposed by Mr. Hall, seconded by Mr. Rees, and agreed, that the Division ask the N.V.M.A. to write to the Editor of that paper pointing out the profession's objection to the use of the abbreviation "Vet."

New Members.—The following were elected: Mr. J. Pugh (Ebbw Vale) and Mr. David Scott Weir (Aberdare).

Papers.—The following papers were now presented and discussed:—(1) "Interesting Clinical Cases," by Mr. C. R. Golledge; (2) "Priez-Nocard Bacillus Infection in Cattle," by Mr. W. R. Watson.

[These papers, together with the discussions upon them which ensued, are reproduced in our Clinical Section this week.—Ed., *V.R.*]

A vote of thanks to Mr. Golledge and Mr. Watson was proposed by Mr. Aveston, supported by the President, and carried with acclamation.

Post-mortem Specimens.—Two *post-mortem* specimens were produced, the first by Mr. R. Moore—exostosis of the pelvis—and the second by Mr. W. D. Rees—fractured cervical vertebra.

A vote of thanks to the President for his conduct of the proceedings concluded the meeting.

C. E. Perry, *Hon. Secretary.*

Bricket Fusilier has died in America. This great Hackney pony stallion was ten times supreme champion and twice reserve champion at the National Hackney Show. He was exported to California after winning the championship in 1931.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

* * * * *

DIARY OF EVENTS

Dec. 19th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Dec. 22nd.—R.C.V.S. Oral Examinations conclude in London.

* * * * *

VETERINARY SURGEONS AND LOCAL DIRECTORIES

Members are requested to bring to the notice of the General Secretary, N.V.M.A., 2, Verulam Buildings, Gray's Inn, W.C.1, any instance in which a local directory does not provide a special column for the appearance of Veterinary Surgeons' names and addresses. The name and address of the directory concerned should be stated.

* * * * *

PERSONAL

Retirement of Mr. Ll. E. W. Bevan

The retirement is announced of Mr. Llewellyn E. W. Bevan, M.R.C.V.S., from the post of Veterinary Bacteriologist and Director of Veterinary Research in Southern Rhodesia, a position which he has filled with much credit to himself and great benefit to veterinary and agricultural science in the Colony for no fewer than twenty-eight years.

Rhodesian Farmers' Tribute

In this connection we desire to reproduce the following letter addressed to Mr. Bevan from the Secretary of the Rhodesia Agricultural Union:—

Rhodesia Agricultural Union,
Salisbury.

November 7th, 1932.

L. E. W. Bevan, Esq.,
c/o The Veterinary Department,
Salisbury.

Dear Mr. Bevan,

At a recent meeting of the Executive of the Rhodesia Agricultural Union a unanimous expression of regret at your retirement was passed.

In conveying this message to you, I was asked to express, on behalf of the farmers of Southern Rhodesia, the very sincere thanks for the splendid work you have done on behalf of the country.

Yours sincerely,
(Signed) J. S. Parker,
Secretary.

* * * * *

Promotion.—Mr. R. Daubney, M.Sc. (Wash.), M.R.C.V.S., has been promoted from the Deputy Chief Veterinary Research Officership of Kenya Colony and Protectorate to the position of Chief Veterinary Research Officer.

* * * * *

Appointment.—On the recommendation of the Health Committee, Liverpool City Council has appointed Mr. Hugh Trevor Matthews, F.R.C.V.S., B.V.Sc. (Liv.), D.V.H., Assistant Veterinary Officer to the Corporation of Liverpool, as Deputy

Veterinary Officer, at a salary of £800 per annum. This appointment follows the recent promotion of Captain A. W. Noël Pillers, F.R.C.V.S., D.V.S.M., from Deputy to Chief Veterinary Officer, consequent upon the retirement of Mr. T. Eaton Jones, F.R.C.V.S.

* * * * *

R.S.P.C.A. COUNCIL:
LIEUT.-COLONEL SIMPSON CO-OPTED.

Our readers will be gratified to learn that, after a lapse of some years, the veterinary profession has again secured representation, by the co-option of one of its members, on the Council of the Royal Society for the Prevention of Cruelty to Animals. At the last meeting of the Council of that organisation Lieut.-Colonel P. J. Simpson, D.S.O., T.D., J.P., F.R.C.V.S., was elected a co-opted member of the Council, and, in conveying to Colonel Simpson the decision of the Council in this regard, the Chief Secretary of the R.S.P.C.A. took the opportunity of expressing warm appreciation of the help afforded the R.S.P.C.A. by our President in connection with the dispensary schemes.

* * * * *

DIPLOMA IN VETERINARY STATE MEDICINE

On the results of the examination held at Edinburgh on December 7th, the following condidates have been awarded the Diploma in Veterinary State Medicine: Joseph James Gildea and Robert McNeil.

* * * * *

LONDON UNIVERSITY EXAMINERS

At a meeting of the Court of the University of London, held on November 23rd, the following were appointed to act as Examiners for the Intermediate and Final Examinations in Veterinary Science for Internal and External Students in 1933:—

Veterinary Anatomy.—J. McCunn (R. Vet. Coll.) (Chairman); and the External Staff Examiner.

Veterinary Physiology.—W. L. Symes (R. Vet. Coll.) (Chairman); and the External Staff Examiner.

Veterinary Hygiene.—G. H. Wooldridge (R. Vet. Coll.) (Chairman); and the External Staff Examiner.

Veterinary Pathology.—T. Hare (R. Vet. Coll.) (Chairman); and the External Staff Examiner.

* * * * *

FUNERAL OF THE LATE MR. E. ALFRED WEST

The late Mr. Ernest Alfred West, F.R.C.V.S., to whose life and work we paid tribute in our last issue, was laid to rest in Woodbury Churchyard on the afternoon of December 6th.

The Rev. R. L. Neely (vicar of Woodbury) officiated, and the immediate mourners included Dr. B. M. R. West and Mr. Dudley M. West, sons; Miss West, daughter; Mr. and Mrs. F. Snell, son-in-law and daughter, and Miss M. E. Price (London), secretary to Mr. West.

Amongst the large general company were Lord Mamhead, of Exeter, and the following members of the veterinary profession: Mr. E. R. Edwards, F.R.C.V.S. (Ministry of Agriculture), representing the Royal College of Veterinary Surgeons; Mr. W. G. Blackwell, M.R.C.V.S., of Exmouth, representing the National Veterinary Medical Association, and the Western Counties Division, of which Division he is President; Mr. R. Barons Nelder, M.R.C.V.S., of Exeter, and Mr. W. B. Nelder, F.R.C.V.S., also representing the Western Counties Division; and Mr. A. H. Jones, M.R.C.V.S., Exmouth.

The floral tributes included tokens from the Presidents and members of Councils, R.C.V.S. and N.V.M.A., many individual members of the profession, Miss Price (Secretary), Mr. R. E. Alexander, M.R.C.V.S. (Assistant), the employees, Mr. W. O. Cecil Power, Traffic Manager of the Birmingham and Midland Motor Omnibus Co., and the Directors and Officers of the London General Omnibus Co., Ltd.

* * * * *

ARMY VETERINARY SERVICE

Movements of Officers

Major J. S. Keane is at present in this country on leave from India.

Lieutenant J. R. Stewart was posted from Aldershot to the Southern Command on October 26th, and is now doing duty at Tidworth.

Captain A. P. MacDonald sailed for India on October 29th, for a full tour of duty abroad. He did duty *en route* on board a freight-ship conveying remounts to Egypt.

Major W. N. Rowston reverted to the British establishment on November 14th, and is now doing duty at Hounslow.

Colonel H. S. Mosley, D.S.O., sailed for India on November 18th, for the purpose of assuming duty as Director of Veterinary Services, Army Headquarters, India.

Colonel J. J. B. Tapley, D.S.O., was posted from the Eastern Command to Aldershot on November 18th, on which date he assumed duty as Deputy Director of Veterinary Services, Aldershot Command.

Colonel W. E. Schofield, O.B.E., reverted to the British establishment on November 28th, on which date he assumed duty as Assistant Director of Veterinary Services, Southern Command, at Salisbury.

Lieut.-Colonel H. C. Dibben reverted to the British establishment on November 28th, on which date he assumed duty as Commandant, Royal Army Veterinary School and School of Farriery, at Aldershot.

Major B. J. W. Nicholas and Lieutenant A. A. Kidd are at present in this country on leave from India; the latter on sick leave.

Colonel H. E. Gibbs, D.S.O., arrived home from India on December 1st, on which date he assumed duty as Assistant Director of Veterinary Services, Eastern Command, in London.

Lieut.-Colonel, H. J. Holness, D.S.O., sailed for India on December 8th, for a full tour of duty abroad.

. . . . .

London Gazette—War Office—Territorial Army

Dec. 9th.—Capt. W. R. Smith relinquishes his commission on reduction of estabt. (Nov. 1.)

. . . . .

Army Promotion Examinations

It is announced in an Army Order that the periods of military history selected for the examination for promotion of Major of the Royal Army Veterinary Corps for the year 1934 are as follows:—

Majors, Royal Army Veterinary Corps, in subhead (k) (ix), for promotion. March, 1934:—"The Veterinary Services with the Egyptian Expeditionary Force, 1914-16," as described in the Official History of the War, Veterinary Services, pages 128-81, 251-76, and Chapter xxvi. October, 1934:—"The Veterinary Services in France and Belgium," as described in the Official History of the War, Veterinary Services, Chapters ix, xxv, xxvii, xxviii, and xxxi.

ROYAL AGRICULTURAL SOCIETY

The Duke of Devonshire was unanimously elected president of the Royal Agricultural Society of England for the second time at the annual general meeting of governors and members of the society held at the Royal Agricultural Hall, Islington, on December 7th. He was president also in 1908.

Lord Mildmay of Flete, the retiring president, who was in the chair, said that the circumstances which attended the holding of the show near Southampton had been difficult, but it had been a success in every way, except for the attendance of the public.

The assistance proferred by the town of Derby and the county for the forthcoming show at Derby was already most encouraging. Lord Daresbury would tell them that Derby was the salvation of the Society after the terrible experience at Park Royal in 1905.

* * * * *

H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net. s.	d.	*Post Free.* s.	d.
House of Commons Bills:—				
16. Exportation of Horses ...	0	1	0	1½
28. Protection of Dogs. To prohibit the vivisection of dogs	0	1	0	1½
41. Protection of Animals (Amendment)	0	1	0	1½
42. Coal Mines (Protection of Animals)	0	1	0	1½
Statutory Rules and Orders, 1932:—				
997. India. Superior Civil Service Rules. Amendment, dated November 15th, 1932...	0	1	0	1½

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

* * * * *

THE LATE MR. E. ALFRED WEST

To the Editor of the Veterinary Record.

Sir,—With the passing of Mr. E. Alfred West the Victoria Veterinary Benevolent Fund has lost, as your tribute in last week's *Record* reveals, a great friend and ardent worker in the cause of Charity. To some Mr. West may have appeared the shrewd business man, and this he was, but underlying that sharp keenness he had the most kindly and generous disposition and the many thoughtful and helpful deeds that he performed to assist those in adversity are known only to a few.

His influence with the cinema mentioned in your notice was the means of the Victoria Veterinary Benevolent Fund receiving many handsome donations, and in other ways he was instrumental in bringing financial assistance to the Fund. But it was privately and comparatively unknown that he performed his good deeds. More than one person has reason to remember Mr. West with sincere gratitude, inasmuch as they have been helped not only financially, but by his obtaining clothing for them, and by his interest on their behalf extending to an endeavour to find them employment. In these and in many other ways he gave them the opportunity of regaining that which seemed lost.

The Fund has lost a wise counsellor, as with his excellent business mind Mr. West quickly discriminated between those who were deserving and those who were not and these same qualifications were of inestimable value in conducting the finances of the Fund.

These few remarks are made only in connection with Mr. West's activities in the sphere of Veterinary Benevolence. His work whilst his health permitted was not confined to this, as is made abundantly clear from your reference to the excellent advice and guidance on financial matters which he gave whilst holding the post of Treasurer of the N.V.M.A. and as a councillor of the R.C.V.S. Of the many who will mourn his loss and miss his genial company, none will do so more than

Yours sincerely,
P. J. Simpson.
Hon. Secretary,
Victoria Veterinary Benevolent Fund.

* * * * *

VETERINARY SUPPORT FOR THE NATIONAL HORSE ASSOCIATION

To the Editor of the Veterinary Record.

Sir,—The Council of the National Horse Association is very desirous of having the full support of all Divisions of the National Veterinary Medical Association in its efforts to further the interests of the horse, and especially at the present time when the grants for horse breeding are under process of discontinuance. It is realised that the National Veterinary Medical Association, representing as it does the general body of veterinary practitioners, can exert a healthy influence in situations which affect the best interests of agriculture, commerce, and the remounting of the Army.

At present the N.V.M.A. and its Central Division (Central Veterinary Society) are represented on the Council of the Association by Mr. J. W. McIntosh, M.R.C.V.S., and Mr. W. Perryman, M.R.C.V.S., and eight other divisions are included in the membership. Mr. W. J. Hatton, M.R.C.V.S., Mr. R. C. Irving, F.R.C.V.S., and Major-General Sir John Moore, F.R.C.V.S. (President-elect) are also on the Council, but the Association would appreciate the backing of still more Divisions of the parental body. It is felt, too, that if individual members of the veterinary profession would enrol as members (at present there are only twelve) they would be able to induce many of their hunting and agricultural friends to accept membership, and so make the Association a national organised power in the land in matters affecting the welfare of horses and their use.

The Association is recognised as the mouthpiece of 117 affiliated Societies, and is consulted by Government when transport, Highway Code and other questions regarding horses arise. The minimum subscription of 10s. 6d. per annum includes a useful "Horse Owners' Reference Book" containing information on almost every conceivable point relative to horses and their

XUM

activities. For membership, application should be made to me.

Yours faithfully,
R. A. Brown, *Secretary.*

The National Horse Association
of Great Britain,
12, Hanover Square,
London, W.1.
December 8th, 1932.

* * * * *

THE SLAUGHTER OF PIGS BY MEANS OF THE USE OF THE ELECTROLETHALER

To the Editor of the Veterinary Record.

Sir,—Whilst all who have the welfare of animals at heart will be interested to see the letter from the Chief Secretary of the R.S.P.C.A. published in your last week's issue, acknowledging the humanity of the electrical device known as the Electrolethaler, in the slaughter of pigs, those who have any knowledge of the circumstances can only regard such letter as a very belated admission of a fact which was fully and completely proved, scientifically, long ago.

This device has been in use at the factories of Marsh & Baxter, Ltd., for at least a year, and it was on their initiative that, so far back as March last, an exhaustive investigation into the humane aspect of its use was carried out at their principal factory at Brierley Hill by three of the most eminent physiological and veterinary scientists—Professor Sir Leonard Hill and Professor W. L. Symes, on the physiological side, and Professor F. G. T. Hobday (Principal of the Royal Veterinary College) on the veterinary side. The reports of those scientists were published in full in the *Veterinary Record* of April 23rd last, and completely established the humanity of that method.

The R.S.P.C.A. had an opportunity afforded to them of associating themselves with Messrs. Marsh and Baxter, Ltd., in that investigation, but as they did not avail themselves of that offer, because they were not prepared to be bound by the findings of the scientists, the investigation was proceeded with by Marsh & Baxter, Ltd., alone, with the result already stated.

It is unfortunate that the R.S.P.C.A. does not show a greater readiness to give credit where it is due, particularly where the correctness of their own preconceived ideas has been in issue. Otherwise the Secretary of the Society in this instance might have stated the fact that the use of this new electrical method in this country was due to the initiative of the firm named, and that no credit for this can be claimed by the Society.

In these circumstances it is somewhat difficult to understand why the Society should have waited for five or six months before indicating their support of a method the humanity of which had already been so completely established.

No mention is made in the Secretary's letter of the fact that the device can be used with equal ease and facility on other small animals, *e.g.*, calves, sheep and lambs, and I do not know whether they wish it to be assumed that they do support its use upon such other animals.

Yours faithfully,
D. J. Anthony.

Brierley Hill,
Staffs.
December 12th, 1932.

* * * * *

CONTAGIOUS IRIDO-CYCLITIS IN SHEEP

To the Editor of the Veterinary Record.

Sir,—Mr. Henry Gray's letter seems rather "Rolls-Roycey." In his translation of Dr. Eugéne Nicolas' work on "Veterinary Ophthalmology" he mentions only Mr. R. Hughes, of Oswestry, as a British practitioner who has met with the disease in sheep. If it is so common in this animal as his letter seems to indicate and has been referred to by "many others" and "on many occasions" in such a galaxy of English periodicals, why not mention the names of the recorders?

The establishment of the records of many cases of the disease in sheep in Great Britain and Ireland will not be verified by the type of *obiter dicta* so much beloved by some politicians and judges, but by exact references and names.

Yours faithfully,
G. Mayall.

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 30th Nov., 1932	17	17	2	30	5	7	27	44	28
Corresponding period in 1931	15	15	—	—	1	1	24	86	38
1930	19	22	—	—	2	3	27	95	43
1929	15	18	1	60	4	8	60	198	113
Total 1st January to 30th November, 1932	309	375	17	1,312	117	180	260	1,467	720
Corresponding period in 1931	424	473	97	10,649	128	226	267	1,809	774
1930	338	382	8	306	186	281	388	2,240	1,005
1929	405	494	36	3,448	189	371	511	2,644	1,543